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MISSION STATEMENT
OF THE
INDIANA NONPOINT SOURCE TASK FORCE

The Indiana Nonpoint Source Task Force is a group of concerned parties who have a vested interest in reducing nonpoint source pollution. The Nonpoint Source Task Force will develop strategies for reducing nonpoint source pollution and its effects on Indiana's water resources.

It is the intent of the Nonpoint Source Task Force that this document be used in implementing nonpoint source pollution reduction programs in Indiana. It is not the intent of the Nonpoint Source Task Force that this document be used as the sole justification for government regulation.

MISSION STATEMENT
OF THE
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

The IDEM is dedicated to conserving, protecting, enhancing, restoring, and managing Indiana's environment. We strive to fairly, but vigorously, enforce environmental laws and standards; promulgate regulations consistent with the law and public policy; and promote conservation, pollution prevention, and a healthy and sustainable ecosystem. We are committed to making Indiana a cleaner, healthier place to live.

1.0 INTRODUCTION

In response to the need for greater Federal guidance on State and local nonpoint source management, Section 319 of the 1987 amendments to the Clean Water Act (CWA) established the U.S. Environmental Protection Agency (U.S. EPA) Nonpoint Source Management Program. The program provides U.S. EPA funding to States, territories, and Indian tribes to support a variety of activities related to nonpoint source management, including technical assistance, education and outreach, technology transfer, demonstration projects, and water quality monitoring.

This chapter presents an overview of nonpoint source pollution; discusses the purpose of this Nonpoint Source Management Plan; summarizes the nine key elements identified by U.S. EPA and the States as fundamental to a dynamic and effective Nonpoint Source Management Program; describes the Clean Water Action Plan; and reviews the findings of the Indiana Nonpoint Source Task Force. These items are addressed in the following sections:

1.1 WHAT IS NONPOINT SOURCE POLLUTION?

Nonpoint source (NPS) pollution is water pollution that results from a variety of land use practices. Unlike pollution from industrial and sewage treatment plants, which are generally characterized as point sources, nonpoint source pollution is generated from many diffuse sources. Nonpoint source pollution is spread by rainfall and snowmelt that moves across the ground as runoff which picks up and transports pollutants to waterbodies. According to the States, nonpoint source pollution is the leading cause of surface water quality problems, including impairments to drinking water supplies, recreation, fisheries, and wildlife.

Examples of nonpoint source pollutants include the following:

- Fertilizer and pesticides from agricultural lands and residential areas;
- Oil, grease, and toxic chemicals from urban runoff;
- Sediment from improperly managed construction sites, agricultural and forest lands, and eroding banks and shorelines;
- Bacteria and nutrients from livestock, pet wastes, and faulty septic systems.

The origins of nonpoint source pollutants are diffuse and often difficult to trace. IDEM's Nonpoint Source Task Force identified several human-related origins of nonpoint source pollution as most prevalent in Indiana:

- Agricultural activities
- Animal production operations and feedlots
- Streambank and shoreline erosion
- Timber harvesting
- Land development

- On-site sewage disposal units
- Solid waste disposal landfills
- Transportation-related facilities
- Coal mining
- Oil and gas production
- Non-energy mineral extraction
- Atmospheric deposition

Each of these suggested origins of nonpoint source pollution are discussed in the Task Force's findings in Attachment A.

1.2 PURPOSE OF THIS PLAN

This Nonpoint Source Management Plan is intended to serve as a handbook and resource guide for State and local officials to help them manage nonpoint source pollution in Indiana. The subsequent chapters will review the following items:

- Nonpoint source program goals
- Watershed management partnerships in Indiana
- Processes for identifying impaired watersheds and watersheds needing protection
- Watershed management and nonpoint source management at IDEM: structure and programs
- Mechanisms for program management and coordination
- Measuring progress

In addition, this Plan is submitted to U.S. EPA Region V in satisfaction of Indiana's requirement to demonstrate that it is developing an effective Nonpoint Source Management Program, in accordance with the provisions of the Clean Water Act. Details of these requirements are given in Section 1.3.

NOTE: Throughout this Plan, "the State" refers to IDEM unless otherwise described. IDEM has certain mandates and charges related to the Clean Water Act, and cannot presume to speak for other agencies or organizations. In many cases partnerships with other entities carry out activities pursuant to the Clean Water Act along with IDEM, but do so voluntarily.

1.3 SUMMARY OF THE NINE KEY ELEMENTS

The *Nonpoint Source Program and Grants Guidance* issued by U.S. EPA in May 1996 described nine key elements of a dynamic and effective Nonpoint Source Management Program:

1. The State program contains explicit short- and long-term goals, objectives, and strategies to protect surface and ground water.

2. The State strengthens its working partnerships and linkages with appropriate State, Tribal, regional and local entities (including conservation districts), private sector groups, citizens groups, and Federal agencies.

3. The State uses a balanced approach that emphasizes both Statewide nonpoint source programs and on-the-ground management of individual watersheds where waters are impaired and threatened.

4. The State program (a) abates known water quality impairments from nonpoint source pollution and (b) prevents significant threats to water quality from present and future activities.

5. The State program identifies waters and their watersheds impaired by nonpoint source pollution and identifies important unimpaired waters that are threatened or otherwise at risk. Further, the State establishes a process to progressively address these identified waters by conducting more detailed watershed assessments, developing watershed implementation plans, and implementing the plans.

6. The State reviews, upgrades, and implements all program components required by Section 319(b) of the CWA, and establishes flexible, targeted, and iterative approaches to achieve and maintain beneficial uses of water as expeditiously as practicable. The State programs include (a) a mix of water quality-based and/or technology-based programs designed to achieve and maintain beneficial uses of water; and (b) a mix of regulatory, non-regulatory, financial, and technical assistance as needed to achieve and maintain beneficial uses of water as expeditiously as practicable.

7. The State identifies Federal lands and activities that are not managed consistently with State nonpoint source program objectives. Where appropriate, the State seeks U.S. EPA assistance to help resolve issues.

8. The State manages and implements its nonpoint source program efficiently and effectively, including necessary financial management.

9. The State periodically reviews and evaluates its nonpoint source management program using environmental and functional measures of success, and revises its nonpoint source assessment and its management program at least every five years.

In addition, an index summarizing where each of the nine key elements is addressed in this Plan is provided in Attachment B.

1.4 THE CLEAN WATER ACTION PLAN (CWAP)

This Plan was also developed to comply with the goals outlined in the Federal Government's *Clean Water Action Plan.*

The nation's *Clean Water Action Plan: Restoring and Protecting America's Waters* was issued by U.S. EPA in February 1998 in response to a directive by Vice President Albert Gore. The Plan describes actions that Federal, State, Tribal, and local watershed managers must take to achieve "fishable and swimmable" waters for all Americans, the original goal of the CWA.

The CWAP promotes a cooperative approach to watershed protection among Federal, State, Tribal, and local governments, and other stakeholders. The approach calls for identifying watersheds with the most critical water quality problems and then collaborating to resolve the problem by focusing resources and implementing strategies. The CWAP also describes several new initiatives, including

charges to address public health threats, improve the stewardship of natural resources, strengthen pollution runoff controls and improve public accessibility to water quality information.

The *Clean Water Action Plan* served as a guide for creating some components of this nonpoint source management plan.

1.5 FINDINGS OF THE INDIANA NONPOINT SOURCE TASK FORCE

In addition to complying with Federal goals and guidance, this Plan also incorporates the findings of Indiana's Nonpoint Source Task Force. As discussed in Section 3.0, the Task Force was convened in 1996 to assess and provide recommendations for improving nonpoint source management in Indiana. These findings and recommendations were used to develop many components of this Plan, including the goals, project objectives, pollutant concerns, and recognition of partnerships. Recommendations were wide-ranging and included suggestions for assessment, research and development, education, implementation, and regulation enforcement.

While it is not possible for the NPS Program to fulfill the entire vision of the Task Force in the five years covered by this Plan, the Program will seek to carry out as many recommendations as is feasible, and to present the findings of the Task Force to those who can assist in other ways.

As this Plan is implemented, the Program will call on members of the Task Force for further input as the need arises, and is committed to working with the Task Force to revise the Plan during 2004.

The complete text of the Task Force findings is included in Attachment A.

2.0 NONPOINT SOURCE PROGRAM GOALS

Key Element 1: **The State program contains explicit short- and long-term goals, objectives, and strategies to protect surface and ground water**.

This chapter addresses the water quality goals to be achieved under this Plan and is organized in the following sections:

2.1 INITIATIVES AND MEASURES OF SUCCESS

Administrative Goals for the Indiana NPS Program:

The **long-term administrative goal** for the NPS Program in Indiana is to build and maintain dynamic and effective processes and partnerships for restoring and protecting Indiana's waters from NPS pollution. **Five-year targets** for working toward that goal are described below. A **schedule and milestones** for these targets are presented in Chapter 7.0, Table 7-2.

1. Annually update and publicize the Unified Watershed Assessment (UWA)[1]; incorporate the Assessment into nonpoint source and other programs.
   - Submit UWA amendments for pending FFY to U.S. EPA prior to October 1st; disseminate to partners and the public by November 1st; incorporate UWA in Section 319 grants program as per U.S. EPA guidance.
2. Develop and implement Watershed Restoration Action Strategies (WRASs)[2] in partnership with other agencies (IDEM is the lead agency.)
   - WRASs are submitted to U.S. EPA by 3/1/2000; in each of the 11 targeted hydrologic units, significant partners and stakeholders sign the plans acknowledging their concurrence.
3. Manage the Section 319 grants program effectively.
   - Grants are allocated, managed, and administered per U.S. EPA guidance, as evidenced by the Annual and Semi-annual Reports.
4. Participate in the Coastal Zone Management Act (CZMA); (IDNR is the lead agency.)

[1] As defined under the Federal Clean Water Action Plan, States [and tribes] are to work with other appropriate agencies, governments, organizations, and the public to create Unified Watershed Assessments that identify watersheds that do not meet clean water and other natural resource goals and where prevention action is needed to sustain water quality and aquatic resources.

[2] Under the Federal Clean Water Action Plan, States and tribes are to work with appropriate agencies, organizations, and the public to define watershed restoration priorities, with special attention to watersheds most in need of restoration and protection through the year 2000.

- IDEM signs the Coastal Zone Management Plan[3] as proposed by the Indiana Department of Natural Resources (IDNR). This plan is acknowledged in the NPS Management Plan.

5. Participate in and support the Indiana Clean Lakes Program.

   - The Indiana Clean Lakes Program[4] is supported through Section 319 grants and lakes issues are considered in the NPS Management Plan.

6. Transfer water quality information from IDEM to the local level to enable sound planning decisions.

   - The Assessment Branch and the 305(b) Coordinator analyze monitoring data and prepare conclusionary data that will be useful for decision making at the local level.

   - NPS Program disseminates this information within two years of each monitoring sweep, or as conclusionary data is available, through the Basin Coordinators and project managers.

7. Facilitate development of watershed plans at the local level.

   - Through Basin Coordinators, Natural Resources Conservation Service (NRCS) Resource Conservationists, project managers, and partner agency personnel, assist local efforts to develop sensible watershed plans to enable effective projects.

8. The Office of Water Management of IDEM will act as a bridge between IDEM and partner agencies such as IDNR, United States Fish and Wildlife Service (USFWS), United States Geological Survey (USGS), Indiana Geological Survey (IGS), NRCS, et al.

   - Watershed Management Section participates regularly in partnership entities such as the State Technical Committee, W.A.T.E.R. Committee, etc.[5]

   - IDEM endorses elevating the W.A.T.E.R. Committee or a similar group to the level of a recognized body with authority and support, for the purpose of coordinating watershed restoration and protection throughout the State.

9. Develop and implement the nonpoint source components of the total maximum daily load (TMDL) plans.[6] (TMDLs are administered by the TMDL Program in the Office of Water Management, IDEM..) TMDLs are scheduled to be completed and implementation will have begun by 2015.

   - NPS Program participates in the TMDL workgroup and assists in development of TMDL implementation plans for nonpoint source impairments of Indiana waters.

   - Basin Coordinators positions are established to facilitate public outreach, overall coordination, and the implementation of the nonpoint source component of TMDL plans at the watershed level.

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3 See Section 5.1.3 for a summary of the Coastal Zone Program.
4 See Section 5.5 for a summary of the Clean Lakes Program.
5 See Section 3.0 for a description of State committees and partnerships.

6 See Section 4.5.2 for a description of the TMDL program in Indiana.

10. Develop, coordinate, and implement comprehensive river basin or large watershed planning; integrate watershed planning approach throughout IDEM OWM.

    - Watershed restoration and protection coordination plans are to be completed on 11 8-digit hydrologic units (targeted by the FFY 1999 Unified Watershed Assessment) during FFY 2000; work on ten more will be initiated during FFY 2000. These will be selected based on FFY 2000 amendments to the UWA..

11. Integrate nonpoint source planning and project support needs with other sources of financial assistance, including the State Revolving Fund (SRF) and Sections 104 and 205(j) grants.[7]

    - Solicitation and award of Section 104 and 205(j) grants and SRF- NPS grants is coordinated with the Section 319 project grants in a coherent manner to support watershed restoration and protection.

2.2 WATER QUALITY GOALS

The long-term water quality goal for the NPS Program in Indiana is to ensure that all waters of the State will meet designated uses for recreation, aquatic life support, fish and wildlife consumption, and drinking water sources and that these uses will not be impaired due to nonpoint source pollutant loading. It is anticipated that attaining this goal will take until 2020, and in some cases longer. For example, it is realistic to expect that with adequate financial and personnel resources, nonpoint source nutrient and sediment pollution can be abated by 2020. However, restoration of aquatic ecosystems, with a full range of biota, may take longer due to the recovery time of some species.

Environmental or systemic indicators selected to measure the State's progress toward clean water goals include:

- The percent of assessed water bodies that meet designated uses.
- Macroinvertebrate Index of Biotic Integrity (mIBI) scores.
- Fish Index of Biotic Integrity (fIBI) scores.
- Percent change of selected substances in surface waters (*E. coli*, dissolved oxygen (DO), ammonia, turbidity, and others)
- Trends in concentrations of pesticides and nutrients in monitored hydrogeologic settings.
- Indiana Trophic State Index (ITSI) Scores for lakes and reservoirs.

These parameters are measured by the Assessment Branch, and the results are reported in the 305(b) Report and other IDEM reports (see Attachment D). In each case, the attainment target is the State's water quality standard for that parameter, if a standard has been established. The baseline data year for each river basin will be the year in which the first Monitoring Strategy sampling took place: West Fork White River & Patoka, 1996; East Fork White River & Whitewater, 1997; Upper Wabash, 1998; Lower Wabash & Kankakee, 1999; Great Lakes Drainage and Ohio Basin, 2000.

[7] See Attachment C and Appendix III for a summary of Indiana nonpoint source partnerships and funding sources.

The 305(b) Report[8] for Indiana provides information concerning these indicators to the public and to U.S. EPA at required intervals in the form of waterbody assessments. The 305(b) Report will constitute the assessment of water quality for the NPS Management Program, as well. Nonpoint source assessment will be further supported by the Unified Watershed Assessment process.

Short-term water quality goals or five-year targets for the NPS Program address planned improvements in water quality measures, including:

- Reductions in **nutrient, clean sediment, pathogen, and pesticide loading;**
- Increases in **oxygenation of surface waters**; and
- Reductions in **biotic community** impairment.

These have been identified by the Assessment Branch and the NPS Task Force as the major water quality impairment **priorities** due to nonpoint source pollution in Indiana. A schedule and details of these **five-year targets** are presented in Section 7.1, Table 7-2, and are summarized below:

1. 2000-2001 monitoring of the White River Basin shows a 10% reduction in **nitrogen and phosphorus** levels in the water column of surface waters over 1996-1997 levels. Where possible these changes will be identified as attributable to either nonpoint source or point source pollution.

2. In watersheds where **sediment** is believed to be a critical issue as shown in the UWA, the number of acres of cropland farmed to "T" increases by 5% and stream miles protected by riparian vegetative buffers are increased by 10% over tillage transect and Conservation Reserve Program (CRP) enrollment levels recorded in 1996. ("T" is defined as the soil loss, in tons per acre, that can be sustained without reducing productivity.)

3. In White River Basin watersheds where livestock production is believed to be the primary source of **pathogens** (as identified by the UWA) *E. coli* levels decrease by 10% as compared to 1996-1997 levels.

4. In White River Basin watersheds where nonpoint source pollution is believed to be the primary cause of **aquatic ecosystem degradation**, a 10% improvement in the ALUS (Aquatic Life Use Support) score will be evident in monitoring carried out in 2001-2002 as compared to 1996-1997.

5. An **atrazine** management plan will be developed by 2004 for the St. Joseph watershed, working cooperatively with Michigan DEQ, in order to reduce atrazine loading to Lake Michigan by 30% by 2009.

5. In White River Basin watersheds where **low dissolved oxygen** (DO) levels are believed to be due to NPS pollution, as indicated in FFY 2001 amendments to the UWA, there will be a 10% improvement in the ALUS (Aquatic Life Use Support) score shown by monitoring carried out in 2001-2002 as compared to 1996-1997.

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[8] Under Section 305(b) of the Clean Water Act, the States are to report on the status and trends in water quality in the State and specific sources of water quality impairment.

The White River Basin is specified in these targets because it is the only basin that will have been sampled, analyzed, and assessed two times (1996-1997 and 2001-2002) by 2004[9]. In subsequent years, similar targets will be established for the Upper and Lower Wabash, Kankakee, Great Lakes, and Ohio basins.

[9] See Section 4.2 for a description of Indiana's Rotating Basin Monitoring Cycle.

3.0 WATERSHED MANAGEMENT PARTNERSHIPS IN INDIANA

Key Element 2: **The State strengthens its working partnerships and linkages with appropriate State, Tribal, regional, and local entities, including Conservation Districts, private sector groups, citizens groups, and Federal agencies.**

3.1 OVERVIEW

Four key State partnerships have been formed over the past five years to support watershed protection and nonpoint source management. These partnerships include: the Nonpoint Source Task Force, the W.A.T.E.R. Committee, the Conservation Partnership, and the Watershed Coordinator's Network. This Chapter describes these partnerships, their goals and activities, membership, and current role in Indiana's approach to nonpoint source management An example of how these partnerships can support watershed management and Indiana's proposed future watershed planning process is briefly described.

3.2 THE NONPOINT SOURCE TASK FORCE: HISTORY AND MEMBERSHIP

To obtain funding under section 319 of the clean Water Act (the Act), the 1987 Amendments of the Act required Indiana to develop and submit a Nonpoint Source Management Plan to U.S. EPA. In order to fulfill these requirements, an NPS Task Force composed of representatives from relevant State, Federal and local agencies and organizations was formed in 1987. The Plan developed in 1987 included the following:

1. Discussion of seven land uses with potential for nonpoint source pollution (Urban runoff; land disposal; mineral resource extraction; drainage, flood control and construction; forestry; agriculture; and miscellaneous [atmospheric deposition, hazardous waste, road de-icing, spills, and recreational boating]).
2. An NPS Assessment Report listing impaired waters of the State with nonpoint sources thought to be affecting them.
3. A process to identify best management practices (BMPs) and measures to control each category of NPS pollution.
4. State and local programs for controlling NPS pollution.

5. A certification by the State Attorney General that existing State laws are adequate to carry out the proposed management program.
6. Identification of funding sources that will be used to carry out the program.
7. Identification of individual Federal financial assistance programs or Federal development projects to be reviewed by the State for consistency with its proposed NPS Management Program.

Initially the public was involved in the development of the Plan through a mass notification of the formation of the Task Force. Once the Management Plan was completed in draft form, three public meetings around the State were held to solicit public comment.

The NPS Management Plan was published in June 1989 and has been used to guide the Indiana NPS program since that time. It was intended that it would be evaluated and updated by 1994. A shortage of staff made this impossible until late 1995, when planning for an update began. The NPS Task Force reconvened on May 10, 1996. IDEM found greater interest in the NPS issues in 1996 compared to 1987. Over 70 people representing 40 different agencies and organizations participated. (See list of participating agencies and organizations in Attachment C.) The NPS Task Force met five times to work on the update of the Plan concluding in May 1997.

The Task Force identified major sectors of human activity that cause nonpoint source impacts in surface and ground water resources. Subcommittees explored each of the sector. Subcommittee reports included: (1) an Issue Synopsis, (2) Analysis, and (3) Recommended Solutions. The complete NPS Task Force findings developed between 1996 and 1998 are included in Attachment A to this document.

The Task Force will be reconvened at the request of the Watershed Management Section in 2003-2004 to make additions, alterations, or updates to the present Plan. Interest groups will be asked to designate new participants to replace any who are unable to attend, and the membership list will be reviewed to determine if additional interest groups should be invited to take part. In the interim, the Task Force will be asked to review and comment on any matters that are of pressing interest to the NPS Program; for example, when the Coastal Zone Management Plan is developed by IDNR, they have asked that the Task Force review the document.

While the Task Force prepared their findings, U.S. EPA, in cooperation with the states, issued new guidance in 1996 concerning the inclusion of the Nine Key Elements in the NPS Management Plan for each State, and proposed requirements for the States' attainment of Enhanced Benefits Status. This guidance called for a different approach to nonpoint source program planning than the one taken by the Task Force, and it was unclear exactly what the approval process and requirements would be. In Fall 1998, with more detailed guidance in hand, work on the NPS Plan was resumed. This resulting Plan seeks to preserve the work and considerations of the Task Force while satisfying U.S. EPA's requirements for incorporating the Nine Key Elements in the Program.

3.3 THE WATERSHED AGENCY TEAM FOR ENHANCING RESOURCES (W.A.T.E.R. COMMITTEE): HISTORY, MEMBERSHIP, ACTIVITIES

The W.A.T.E.R. Committee was organized in February 1993 as the Indiana Interagency Watershed Management Coordination Committee. The name was changed to the W.A.T.E.R. Committee to allow for more comprehensive interaction concerning water issues. The W.A.T.E.R. Committee was originally made up of several Federal, State, county, and local governmental agencies involved in various aspects of water quality protection. Other organizations have come aboard since the Committee first formed. (See the list of participants provided in Attachment C of this document.) While the W.A.T.E.R. Committee has no legal basis or authority, it has met continuously for seven years and acts as the primary forum for watershed-related discussions in Indiana. The NPS Program coordinates with the W.A.T.E.R. Committee on a regular basis to maintain working relationships between agencies and organizations with mutual goals and interests.

In 1997 the W.A.T.E.R. Committee established four priorities for the member agencies. The priorities, and progress to date in implementing them, include the following:

- Promote the creation of a State-wide data library accessible to agencies and the public which contains geographic information system (GIS) and water quality information; promote sharing of data among agencies and with the public. Progress: A plan has emerged and funding is being pursued. The NPS Program will participate in this effort as resources allow.
- Develop a prioritization process for Indiana watersheds, mutually accessible to all agencies, with the intention of improving interagency cooperation in restoration and protection of water resources. Progress: The UWA has been designated to fulfill this priority.
- Develop an interagency team of "Decision Makers" to commit resources to and support future watershed projects. Progress: A group of decision makers has been meeting informally.
- Promote the coordinated development and distribution of watershed education resources. Progress: It has been agreed that sufficient structures now exist in the state to carry out this initiative without the assistance of the Committee. The Committee will continue to promote watershed education where appropriate.

The requirements of the Clean Water Action Plan have made the continuance of the W.A.T.E.R. Committee critical. This group finds themselves positioned to become the focus for water resource conservation coordination within the State of Indiana. In late 1997 the Committee charged a workgroup with developing a *Watershed Action Guide for Indiana*, a manual for local-level involvement in watershed restoration and protection. (This document was published by the IDEM Watershed Management Section in December 1998.) In May 1998 the W.A.T.E.R. Committee identified a group of people from several agencies and charged them with developing the Unified Watershed Assessment, which was reviewed and approved by the Committee prior to being submitted to U.S. EPA. The Committee is currently coordinating an effort to develop a structure for data sharing among State and Federal agencies.

3.4 THE CONSERVATION PARTNERSHIP

Agencies belonging to the Indiana Conservation Partnership (see Attachment C) work together through both legislative mandate and mutual interests. In addition to several Memoranda of

Understanding that facilitate their relationship, they have developed a joint Strategic Plan to confirm their commitment to working together. The Partnership provides technical, educational, and financial assistance to citizens in order to solve erosion and sediment-related problems occurring on the land or impacting public waters.

Since the 1930's, agricultural producers in Indiana have lead efforts to combat soil erosion and water management problems, primarily through the aegis of the Soil and Water Conservation Districts (SWCD) and the agencies which provide them with technical assistance. Local groups have worked with State and Federal personnel to implement new initiatives such as multi-purpose watershed projects in the 1950's and 1960's and to put together the nation's first Resource Conservation and Development Area (RC&D) in the mid 1960's. Indiana also led the way in model implementation projects in the 1970's and in completing the first major State "once over" soil survey. A comprehensive analysis of Indiana's soil and water resource conditions was prepared by the Natural Resources Study Commission in the mid 1980's and was used by the Indiana General Assembly to strengthen the State's role by providing for additional educational, technical and financial assistance for soil and water conservation through the IDNR Division of Soil Conservation. After 60 years, this effort has expanded to include urban land development, forestry, and mining.

The Conservation Partnership published a Strategic Plan in 1997 that identifies and prioritizes natural resources issues in the State. This Plan identifies five primary issues to be addressed in Indiana goals, strategies, and desired results for each issue. These issues are:

- Water quality and quantity;
- Soil quantity and productivity;
- Wetland protection;
- Urban development and loss of farm land; and
- Manure and organic nutrient management

The IDEM NPS Program funds projects sponsored by Soil and Water Conservation Districts and Resource Conservation and Development Councils, as well as projects directly with NRCS, Indiana Association of Soil and Water Conservation Districts (IASWCD), Purdue University and IDNR. These entities assist in project review, work with local groups to develop watershed plans, and participate in the Wetlands Advisory Council and other planning bodies where IDEM is also involved.

The IDEM Watershed Management Section staff works closely with NRCS to publicize and support the Coordinated Resource Management (CRM) approach to ecosystem based planning. The CRM process focuses on resolving local resource management issues through consensus of watershed stakeholders. CRM is an integral tool in developing a feasible watershed management plan.

The Lake and River Enhancement program of IDNR, because it is implemented through field office personnel who work in cooperation with NRCS and the SWCDs, has great potential for partnership with IDEM. Staff share information and workload on similar projects, and the NPS Program will seek to enhance this relationship in the future. IDNR's Riverwatch volunteer monitoring and education program is partially funded by IDEM through a federal grant. A Memorandum of Agreement is being developed between the agencies to protect this relationship.

3.4.1 Governing or Advisory Bodies of the Conservation Partnership

The **State Technical Committee** (STC) advises NRCS and the Farm Services Agency (FSA) in program related matters. IDEM participates regularly as a member of the STC.

The **State Soil Conservation Board** provides policy guidance to the IDNR Division of Soil Conservation, which oversees the Lake and River Enhancement (LARE) Program, Riverwatch, and the operations of the Soil and Water Conservation Districts. IDEM is a regular participant at these meetings.

The **Indiana Association of Soil and Water Conservation Districts (IASWCD)** promotes the SWCDs in Indiana and brings their concerns to the State Legislature. This body also disseminates conservation education materials and training to the Districts. The Nonpoint Source Information Specialist for the IASWCD is paid through a Section 319 grant, which includes publication of *Nonpoint Notes*, a widely distributed monthly newsletter. IDEM regularly attends meetings of the IASWCD Board.

3.4.2 Personnel Shared between NRCS and IDEM

In 1992, an NRCS liaison position was established in the NPS Program at IDEM to provide technical assistance to IDEM, particularly in agricultural matters. This partnership proved mutually beneficial and was recently expanded to include three additional Resource Conservationist positions on the IDEM staff. These conservationists will work to promote watershed planning at the local level and assist with NPS Program elements initiated by the U.S.EPA, such as Watershed Restoration Action Strategies.

3.5 WATERSHED COORDINATOR'S NETWORK

In Fall 1997, representatives from NRCS, IASWCD, and Project CLEAR (Laughery Creek/ Versailles Lake) called together all local watershed project coordinators in Indiana. A mailing list of 30 individuals was developed, including employees of citizen-driven projects, as well as agency personnel and employees of nongovernmental organizations. At that time, seven coordinators were being supported through Section 319 grants. This group has met quarterly to trade experiences, listen to presentations, and express their needs to supporting agencies.

The network has eased the isolation sometimes felt by relatively inexperienced people carrying out a difficult job without accessible role models. IDEM has attended these meetings, providing support where possible and sharing information with the coordinators. This group was used as a sounding board by the W.A.T.E.R. Committee during the development of the *Watershed Action Guide for Indiana: Straight Talk about Developing Watershed Plans*, and the publication was tailored to their needs.

The Network continues to expand as more watersheds recognize the need for a local coordinator to draw together the efforts and aspirations of residents, and to perform the burdensome administrative, educational, and organizational activities that citizens and agency personnel do not have time to complete. The W.A.T.E.R. Committee continues to call on the Network annually for feedback on local watershed group's needs, such as information on the need for technical assistance, funding, and information.

3.6 PUBLIC PARTICIPATION AND PARTNERSHIP COORDINATION IN WATERSHED MANAGEMENT

Since the inception of the NPS Program in the late 1980's, IDEM has supported many watershed oriented projects with investments of time, energy, and financial assistance. Agency, legislative, and locally-led initiatives have had successful starts with help from this program. Of special note are the watershed efforts in the Laughery Creek/Versailles Lake area, where a Clean Lakes diagnostic study in the early 1990's led to watershed land treatment projects targeting cleanup of drinking water sources, with strong, active citizen involvement that continues today.

In December 1997, IDEM began its first agency-wide pilot watershed initiative in the Wildcat Creek watershed. The purpose was to determine how IDEM as an agency could find ways to be more effective in working with a diverse public to better address water quality concerns. This initiative is based on partnerships between federal, state, and local government groups and local businesses, industry, and citizen groups to build consensus on long term clean up within the watershed. Goals of the initiative include:

- Steer financial and technical resources toward improving water quality in the watershed.
- Develop a cooperative plan for long term health of the watershed.
- Provide a template for IDEM to develop a process for carrying out TMDLs that will involve local citizens and interest groups.
- Encourage good avenues of communication among the diverse programs at IDEM.

The Wildcat Creek Watershed Initiative marked a new way of doing business for IDEM. This inclusive approach has expanded partnerships throughout the watershed to include nearly all interests, and has enhanced existing partnerships in the watershed by providing opportunities for dialogue. The test of this project's success will be the development of TMDLs on Wildcat Creek during 1999 and 2000, as well as the continued coordination of IDEM's activities in monitoring, assessing, planning, and implementing point and nonpoint source programs.

4.0 PROCESSES FOR IDENTIFYING AND RESTORING IMPAIRED WATERSHEDS AND WATERSHEDS NEEDING PROTECTION

Key Element 5: **The State program identifies waters and their watersheds impaired by nonpoint source pollution and identifies important unimpaired waters that are threatened or otherwise at risk. Further, the State establishes a process to progressively address these identified waters by conducting more detailed watershed assessments and developing watershed implementation plans, and then by implementing the plans.**

4.1 OVERVIEW

Processes and programs for determining which watersheds are in need of restoration, protection or maintenance are housed primarily at IDEM, but also involve Federal, State, local and private partners. The activities carried out by these programs can be divided into four categories: monitoring, assessment, prioritization, and planning. These processes, to be effective, need to be integrated throughout all levels of society (federal, state, local, industry) and throughout geographic settings (surface and groundwater, lakes and streams, hydrology and landscape). Implementation is discussed in Chapter 5.0.

This chapter describes the programs that are involved in watershed management and NPS assessment in Indiana.

4.2 MONITORING

4.2.1 IDEM Surface Water Monitoring Strategy

The purpose of IDEM's Office of Water Management Surface Water Quality Monitoring Strategy, which was first developed in 1995, is to determine whether surface waters in Indiana's rivers, streams, and lakes meet water uses designated by the State. The Strategy is designed to provide technical data and information in support of the biennial 305(b) Water Quality Report, the National Pollutant Discharge Elimination System (NPDES) permitting program, and the annual Fish Consumption Advisory. In addition, the Strategy provides water quality information with which to analyze water quality trends and develop environmental indicators. Key elements of the original 1995 Monitoring Strategy included strategies for planning, sampling, reporting and volunteer monitoring. The Strategy was well-received throughout IDEM and was endorsed by the U.S. EPA Region 5 Water Division as being progressive and responsive to meeting the State's water quality objectives.

The Strategy divides the State hydrogeographically into five basins, each containing approximately 20% of the state's land mass. Surveys are to be completed every five years, beginning with the initial schedule shown below:

- West Fork White River and Patoka River Basins in 1996;
- East Fork White River and Whitewater River Basins in 1997;
- Upper Wabash River Basin in 1998;
- Lower Wabash River and Kankakee River Basins in 1999; and
- Great Lakes and Ohio River Basins in 2000.

The 1995 Strategy specified two years of field sampling and monitoring for each of the defined river basins, with data analysis, assessment, and reporting to follow each year's efforts. The first year of sampling was to provide a 'big picture' of the water quality in each basin through probabilistic sampling, characterizing the overall environmental quality of each major river basin and identifying parts of the river basins that were impaired (did not meet water quality standards). Second year efforts would allow staff to focus on a few areas needing more study to identify pollution sources. In addition to water column parameters, fish and macroinvertebrate communities, fish tissue and sediment contaminants, pesticides, and *E. coli* are sampled in rivers and streams. Recently, the state's lake monitoring program has worked to bring its sampling schedule into closer alignment with the Monitoring Strategy's rotating basin approach. However, lake distribution within the state is not as uniform as riverine hydrology. Therefor, sampling of all waterbodies will not always coincide.

Fixed station monitoring supplements the monitoring strategy. More than 40 stations were added to the network in 1998, bringing the total to 150. Most stations are located adjacent to USGS gauging stations which provide flow data.

The value of information gathered by volunteers was evident during the development of the Monitoring Strategy. Interested citizens know their watersheds in a different way than agencies, and far outnumber field staff. It was hoped that volunteer monitoring data could supplement IDEM's efforts in locating areas for special protection, restoration, or further study. Inconsistency in staffing a Volunteer Monitoring Coordinator position, to date, has hindered the Agency's ability to realize this potential resource.

The 1995 Monitoring Strategy was not fully implemented in 1996 and 1997. Although the first-year general overview surveys were conducted in the West Fork and East Fork of the White River Basin, the second year intensive follow-up field monitoring work was not performed due to staff resource limitations.

Changes to the 1995 strategy were prompted by the following:

- The need for certain data intensified with IDEM's commitment to process approximately 700 backlogged municipal and industrial NPDES permits by June 30, 1999.
- Focus on TMDLs increased in 1998. This required reallocating resources to identify sources of impairment, to provide data for modeling, and to monitor water quality after new control measures have been implemented.
- 1996 amendments to the Safe Drinking Water Act (SDWA) required that source water protection be emphasized in all watershed planning activities. Consideration must be given to sampling parameters regulated by the SDWA in locations where there is a drinking water intake.
- Personnel and funding resources, which continued to be limited, needed to be managed as efficiently as possible in order to meet the diverse needs of the agency.

With these circumstances in mind, the 1995 Strategy was **revised** in Spring 1998 to shorten sampling to one year per basin using sites selected with a probabilistic design; rededicate program resources; expand the fixed station monitoring program; and create a Special Projects group. This group is responsible for identifying impairments, providing NPDES permit and TMDL support, and conducting other special projects. The revised Strategy gives the Assessment Branch the flexibility to manage diverse projects while still supplying watershed characterizations. Unfortunately neither probabilistic sampling nor fixed station data are well suited to identifying nonpoint source pollution impairments and pinpointing the underlying causes for those impairments. Supplementary exercises such as the Unified Watershed Assessment (Section 4.4.1) and volunteer monitoring will fill some of this information gap until such time as resources allow expansion of the Monitoring Strategy.

4.2.2 Lake Monitoring

For decades monitoring of inland lakes occurred sporadically in Indiana, often in response to poor water conditions and/or public health concerns. In the 1960s monitoring efforts began to focus on the problems associated with excessive nutrient input into lakes. By 1972 Indiana had developed its own multi-metric index for assessing the eutrophication (nutrient) levels of lakes and reservoirs in the state. A concerted effort to sample public lakes in Indiana occurred during the 1970s, resulting in a statewide classification system published in the *Indiana Lake Classification System and Management Plan* in 1980. This document was reprinted in 1986 with a few revisions.

In the late 1980s, with the formation of IDEM and an increased focus on point source issues affecting rivers and streams, coordination of the Indiana Clean Lakes Program was contracted out to Indiana University School of Public and Environmental Affairs (IU/SPEA). SPEA staff and students have been monitoring public lakes and reservoirs around the state, on behalf of IDEM, since then. An update on the trophic state of Indiana lakes was published by IU in 1996 under the title *Indiana Lake Water Quality Update for 1989-1993*; allowing cursory trend analyses on lake eutrophication levels to begin.

Since 1989 SPEA staff and students have also recruited, trained, and coordinated a corps of dedicated lake volunteer monitors. Although volunteer monitoring of lakes is not as intense an effort as with the statewide assessments, citizens collect data with greater frequency and consistency. Three documents entitled *Indiana Volunteer Lake Monitoring Program Results for 1989*, *for 1990-91*, and *for 1992-3* have been published from these efforts. Updated reports for both the statewide lake monitoring and the volunteer monitoring programs are due out soon.

In addition to these reports, SPEA and volunteer-collected data are used by IDEM to assess lakes for the surface water portion of 305(b) reports, waterbody assessments, and more recently the State=s first Unified Watershed Assessment. This information is important in light of the long-term impacts pollution sources can have on lakes. It can easily take 10 years for the positive effects of watershed cleanup efforts to be realized within a lake or reservoir. Until that time a lake itself could act as a pollution source for downstream waters; releasing the sediments, nutrients, and toxins that have been stored in it for years.

4.2.3 Ground Water Monitoring

Under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), the Federal government mandated that the State of Indiana implement an ambient ground water monitoring well network by October 1997. Failure to do so could have resulted in a Statewide ban on six widely-used pesticides coming up for re-registration. The implementation of a baseline monitoring well network, beginning in 1993, was a cooperative effort of four State agencies, including the Office of Indiana State Chemist and Seed Commissioner (OISC), Indiana Geological Survey (IGS), Indiana Department of Natural Resources-Division of Water, and IDEM, in addition to Indiana Farm Bureau Inc., regulated communities, environmental groups and other interested parties. The information obtained from the monitoring well network will establish baseline data for major cations and anions, along with 30 pesticides. The purpose is to statistically relate spatial and temporal trends to their hydrogeologic setting and to provide OISC with enough data to regulate the use of pesticides in areas where they would be banned or otherwise unavailable for use. The process and the roles of the various agencies used to establish the baseline ground water quality monitoring well networks are detailed in the State Pesticide Management Plan (SMP). The project and its history are outlined below.

In May 1989, Indiana passed the Ground Water Protection Act which institutionalized the Indiana Ground Water Task Force as the oversight committee for implementing the Indiana Ground Water Protection Strategy. On October 23, 1992, the Ground Water Task Force adopted a policy framework for the protection of Indiana's ground water. That policy framework served as the basis for the goals of the Draft State Pesticide Management Plan.

First, work groups established in the Fall of 1993 and Spring of 1994 set forth the criteria used to select wells and for the construction of monitoring wells. Other work groups defined the combined hydrogeologic settings and chemical parameters used for the range of statistical comparison. Second, of the 230 hydrogeologic settings identified by the IGS, approximately 60 have been lumped into 22 “type” hydrogeologic settings that represent the State. It was determined that four hundred wells within the 22 hydrogeologic settings would be sampled on a quarterly basis for seven quarters.

The wells that were identified as being possible candidates were screened using GIS buffering techniques, resulting in a possible 2000 new well locations that had proper geologic documentation.

Perennial springs were added to the network as sample locations since a lack of wells in areas with karst topography precluded the investigation of this particular hydrogeologic network.

The first round of ground water sampling was performed by IDEM personnel during the Summer of 1998. Subsequent to the first round of sampling, a ground water database was constructed and some of the first round sampling data was entered. Receiving data and reviewing laboratory quality assurance/quality control (QA/QC) procedures took much longer than expected. The QA/QC review revealed that certain pesticides in the samples degraded much faster than expected using the approved 525.2 method preservative. New approaches in lab analyses using this method were developed and subsequent analyses showed a significant improvement in recoveries for carbamate and the triazine groups. During the QA/QC review, the last of the sampling sites were added to the monitoring well network, site assessments were performed and first round sampling completed. A total of 408 sites were sampled during the first round.

College students and IDEM personnel performed the second round of sampling (355 samples), which occurred during the first and second quarters of FFY 1999. Ground water sampling is scheduled to continue for least six consecutive quarters. The ground water sample analyses are to be performed by OISC, who will then turn over the sample results to IDEM and subsequently to the IGS for hydrogeologic assessment. Ground water at locations that have detectable concentrations of pesticides and nitrates above 10 ppm will be sampled for ^{3}He/tritium ratios and ^{15}N, giving information on the age and source of contamination. Site specific hydrogeologic and geochemical profiles will be developed for every node used in the project.

4.2.4 Volunteer Monitoring Program

IDEM's Volunteer Monitoring Coordinator position was first staffed in 1995 to coordinate with the Surface Water Monitoring Strategy. After initial progress with volunteer monitoring efforts of other agencies and organizations, the position was vacant for a time. It was filled again in Summer 1997 with the revitalized purpose of encouraging grassroots involvement in water quality monitoring, and fostering cooperation among citizens, schools, organizations, and various units of government. Initial research showed that Indiana had numerous active volunteer stream monitoring groups, and a very successful volunteer lake monitoring program, but no volunteer wetland monitoring effort. With this information, IDEM identified the following goals for the Volunteer Monitoring Coordination Program:

- Work with programs having similar goals.
- Assist in further promoting, recruiting, and recognizing active lake volunteer monitors.
- Promote the development of a wetlands-based volunteer monitoring program.
- Contribute to the understanding and protection of Indiana's valuable water resources.
- Educate citizens of all ages about aquatic ecology and the proper collection of water quality data.
- Promote the collection of volunteer monitoring data that will provide useful water quality trends and an early warning of problems that may be occurring in a lake, stream or wetland.
- Collect volunteer data that will complement IDEM's professional data.

4.2.4.1 Pivotal Partnerships for Volunteer Monitoring

Pivotal partnerships for volunteer monitoring in the State have been formed with several volunteer groups, agencies and interested parties:

- **Indiana Volunteer Lake Monitoring Program**: Active since 1988, this effort has been supported through a variety of IDEM-administered funding sources such as Sections 205(j), 106(a) Supplemental, 314, and 319 grants in addition to State dollars. The program itself is coordinated by staff and students of SPEA. Volunteers take regular Secchi disk (water clarity) readings on nearly 100 lakes statewide throughout the summer season. Samples are collected to be analyzed for total phosphorous and chlorophyll *a*. The information gathered by this dedicated corps of volunteer monitors has regularly been included in the State=s 305(b) Water Quality Report.

- **CRAWDAD**, Indiana's Water Monitoring Alliance: Formed in 1996, the partnership is comprised of representatives from existing volunteer surface water monitoring programs, environmental educators and agencies. The purpose of the partnership is to foster collaboration to reduce duplication of efforts. An educational video has been developed about Indiana's volunteer monitoring groups, which will be available in all county SWCD offices and public libraries in county seats.

- **Hoosier Riverwatch:** This is a statewide volunteer river and stream monitoring and education program administered by IDNR Division of Soil Conservation. The purpose of this partnership is to increase public involvement in water quality issues by training volunteers in river and stream monitoring and clean-up activities. This program also provides monitoring and assessment assistance to schools and organizations. The group's activities are partially funded by Section 104(b)(3) grants. (IDEM's Volunteer Monitoring Coordinator has been the Project Manager for two such grants.)

- **Hoosier Sierra Club's Adopt-a-Wetland Program**: This program is in the very early stages of development. The purpose is to educate volunteers to instill local stewardship of natural resources and to increase community understanding of wetland resources. It is intended to foster the development of local wetland inventories and involve local planners. The Sierra Club is to take the lead, with IDEM playing a supporting role.

- **Project WET:** Funded by a 319 grant starting in 1997, this education program has reached a very high number of educators, resource personnel and others across the state. The program meets the needs of teachers for a water quality curriculum, and was developed by participants at writing workshops across the country.

  If you need additional information please view the Indiana Project WET homepage: http://iaswcd.org/projectwet/index.htm

4.2.5 Data Reporting

Water quality data from monitoring programs is collected, analyzed, and assessed for a variety of purposes. To support internal program activities, OWM uses water quality data to prepare Section 305(b) Water Quality Reports, to compile Section 303(d) Impaired Water Bodies Lists, to make

TMDL determinations and to set NPDES permit limits. In addition, IDEM uses the monitoring data for the annual Fish Consumption Advisory, the Northwest Indiana Remedial Action Plan and the IDEM-U.S. EPA EnPPA. These reports are available to the general public, upon request or via the Internet. A complete list of IDEM reports concerning water quality is included in Attachment D.

At this time the Nonpoint Source Program, administered by the Watershed Management Section, accesses monitoring data through the 305(b) and 303(d) reports and completed waterbody assessments, as well as reports published by the Assessment Branch for special purposes. Water quality data is incorporated into the Unified Watershed Assessment through the Aquatic Life Use Attainment Score, Lake Trophic Score, and other metrics.

The State is completing the mapping of hydrologic units to the 14-digit level through a Section 319 grant to USGS. The mapping will be publicly available in Fall 1999. In conjunction with this, the State is identifying stream segments for Reach File Three[10], which will be used in compiling the 305(b) Report.

TABLE 4-1. REPORTS TO U. S. EPA FROM IDEM

Report	Published/Submitted	Responsible Party
Clean Water Act Section 305(b) Water Quality Report	Even numbered years	IDEM Planning Branch
Clean Water Act Section 303(d) List	As determined by EPA	IDEM Assessment Branch
Annual Compliance Report for Indiana Public Water Supply Systems	Annually	IDEM Drinking Water Branch
Fish Consumption Advisory	Annually	ISDH, IDEM Assessment Branch, and IDNR

[10]Reach indexing is a process of linking electronically or geo-referencing state/interstate/tribal water quality information to the U.S. EPA Reach File for mapping and spatial analysis. Reach File Three is the latest version.

4.3 ASSESSMENT

The water quality data analyzed by the Assessment Branch and other agencies is used by IDEM to develop the biannual 305(b) Report, which identifies waterbodies that meet or do not meet designated uses. (Designated uses include recreation, aquatic life support, drinking water supply, and any other use designated by the State.) The Report includes only those waterbodies in which the water quality has been assessed. The waterbodies which are determined to be impaired (i.e., do not meet the State's water quality standards) may be placed on the 303(d) list, which is derived from the 305(b) Report. The 305(b) Report, as the official document that identifies water quality impairments in Indiana, will constitute the Nonpoint Source Assessment for this Plan, in conjunction with the Unified Watershed Assessment.

4.3.1 305(b) Action Plan

In order to produce 305(b) Reports that are consistent and timely, an action plan was developed by the 305(b) Coordinator to facilitate information processing. When using the 305(b) Report it is important to remember that the goal of the Report is to determine the number of stream miles and lake and wetland acres that do not meet designated uses so that remediation or restoration programs can be implemented.

Data for each watershed assessed in the 305(b) Report are compiled using the following process:

1. Determine the number of stream miles and lake acres which do not meet designated uses.
2. Determine the location of those stream miles and lake acres.
3. Identify the most probable pollutants or stressors causing impairment.
4. Identify the most likely activities which are producing the pollutant or stressor.
5. Target the impaired areas to verify and validate extent, magnitude and source(s) of impairment.
6. Prioritize impaired areas for remedial action or restoration projects, addressing both point and nonpoint sources.
7. Implement remediation or restoration plans.
8. Monitor results of remediation and restoration activities to determine success.

This is an ongoing and continuous process.

4.3.2 Data Needs for the 305(b) Assessment Process

IDEM receives water quality data from the Assessment Branch by November of the year following the collection of the data in order to produce the annual 305(b) Report update by April 1. This information must include the number of stream miles and lake acres impaired and the location of those impaired waterbodies. For each stretch of impaired stream or lake, IDEM also collects information on the pollutants causing impairment, the activities or sources contributing to impairment, the Fish Consumption Advisory Report, the mIBI developed for the benthic community, water column chemistry and physical data, sediment data, pesticides data, the fIBI developed for the fish community, the Qualitative Habitat Evaluation Index (QHEI) scores, and lake trophic scores. In addition, any volunteer monitoring data available may be used.

Data collection and analysis gaps have been identified which affect the agency's ability to assess the impact of NPS pollution on water resources. These include:

- the time lag in analyzing information collected in a given year, making data unavailable for two or more years;
- lack of information regarding cause and effect relationships; lack of coordination with the sections in the agency that use data;
- disconnection between data collected and the information needs of the agency; and
- lack of sufficient follow-up sampling.

Through database development and reorganization of the monitoring teams, the Office of Water Management is addressing these impediments to the assessment process.

Information gathered for 305(b) reporting must be focused on determining stream miles and lake acres which do not meet designated uses, determining the location of those stream miles and lake acres, identifying the pollutants or stressors causing the impairment, and identifying the activities producing the pollutant or stressor. This is a sequential process, requiring the identification of impaired waters first, and then the determination of the pollutant(s) and/or stressor(s) causing the impairment. Identification of the cause or source of the pollutant or stressor is an intensive effort, requiring the incorporation of land use activities, identification of point sources of pollutants and their compliance histories, and identification of nonpoint sources of pollutants. Both State agency staff and volunteer field observations in conjunction with monitoring data are necessary to determine the quality of the water resources within a watershed.

4.4 PRIORITIZATION

After monitoring data have been used to develop assessments of the condition and health of the State's waterbodies, individual programs must use this information to set priorities for allocating funding, personnel and other resources. The NPS Program sets priorities through the Unified Watershed Assessment process, as well as by referring to the guidance of the NPS Task Force, U.S. EPA guidance concerning grant programs and initiatives, and the missions and activities of partner agencies.

4.4.1 Unified Watershed Assessment

The Clean Water Action Plan (CWAP), released by the President in February 1998, presents a plan with 111 Action Items directed toward accelerating control of nonpoint source pollution. One of these Action Items requires States to conduct a Unified Watershed Assessment for all 8-digit hydrologic units within the State in order to qualify for watershed restoration funding enabled by the CWAP. (Figure 4-2 is a map of the State showing the 39 eight-digit hydrologic units.) In addition, the Assessment requires sorting of all State watersheds into four categories, based on the condition of the waters that have been assessed in each watershed. While the 305(b) Report is the official assessment of water quality for the State, the UWA presents information not within the scope of the 305(b) Report and characterizes water resources on a watershed basis. The UWA draws together a number of information sources from several agencies to provide common information for programs to prioritize resource and personnel allocations. To prioritize the 39 eight-digit hydrologic units in Indiana, the UWA for FFY 1999 used 13 equally weighted water resource data layers. IDEM has convened participants in a UWA workgroup to support the process, including IDEM, IDNR

Division of Soil Conservation, NRCS, IGS, USGS, Purdue University, and ORSANCO (Ohio River Sanitary Commission).

During 1999, refinements to the UWA process will determine the FFY 2000 prioritization list. Four watersheds have been selected for concentration during 1999, to develop a process that can be used hereafter: Kankakee, Wildcat, Upper White, and Blue-Sinking. These HUCs provide a broad spectrum of restoration needs and information availability, as well as representing both rural and metropolitan watersheds. The intention of the workgroup is to develop information at a fine enough resolution that prioritization to the 11-digit watershed level becomes reasonable. The workgroup is also exploring several mapping exercises which would provide a Statewide view of development pressure, nutrient loading risk, sediment delivery and riparian zone integrity.

The FFY 1999 UWA is available to the public on the IDEM Office of Water website as well as by contacting any of the partner agencies. **Contact the Watershed Management Section, Office of Water Management, IDEM for the most recent updates and revisions to the Unified Watershed Assessment.**

4.4.2 Watershed Restoration Feasibility Issues

When the UWA workgroup convened in June 1998, there was considerable discussion of the issue of feasibility in watershed management. Specifically, the group was interested in exploring the following considerations as filters (a "feasibility index") for watershed restoration:

- Do we know how to fix it?
- Can we afford to fix it?
- How long will it take to fix it?
- Is there a commitment to fix it?
- How do we know when it's fixed?

"Do we know how to fix it..." Some water quality problems, such as mercury contamination in fish, may be beyond the scope of local projects to address. Other types of problems may be technically feasible on a small scale, but difficult to carry out on a large scale. Data may need to be gathered to establish clear cause and effect relationships or to determine the scope of the problem. These considerations are important to the planning process.

"Can we afford to fix it..." Some restoration needs (such as major hydrologic modification or dredging of sediments) may be beyond the economic resources available to the local level, and could require drawing in more powerful partners, taking a regional approach, or seeking non-traditional sources of funding. A thorough understanding of resource needs will help a community plan how to obtain assistance.

"How long will it take to fix it...." Projects requiring more than five years to produce a positive effect require a high level of commitment, and long term allocation of resources. This is not to say that long-term efforts should be ruled out, but that planning should be realistic in order to prevent burn-out of partners or exhaustion of resources and support.

"Is there a commitment to fix it..." If the local community does not have a strong desire to maintain a project to completion or to provide essential support, the project may not be appropriate

at this time. This underlines the importance of project development 'from the bottom up' rather than 'from the top down'.

"How do we know when it's fixed?...." When setting targets for chemical or biological water quality indicators, the response time of the ecosystem needs to be taken into account. Projects may need several years of follow-up monitoring in order to detect the results of the practices that were implemented. Agencies providing technical assistance must be able to describe what a restored ecosystem will be like for the project area, so that the appropriate environmental indicators can be selected for monitoring. The community will need to discuss their expectations and decide what will constitute a restored watershed condition.

As the UWA workgroup proceeds with the FFY 2000-2004 UWA amendments, they will explore ways to incorporate feasibility considerations into the restoration and protection scenarios for each watershed.

4.4.3 Iteration and Feedback

Section 305(b) monitoring and assessment functions are carried out on a five year cycle for each river basin (see discussion of monitoring activities in Section 4.2 above). When the monitoring data from the second cycle of sampling has been processed (for example, the West Fork White River will be sampled for the second time in 2001), the Watershed Management Section can begin to compare first and second cycle data to determine what parameters have changed. The prioritization of these watersheds can then be adjusted and restoration strategies modified accordingly. If local information or partner agency data becomes available in the interim in a portion of any watershed, this should be taken into account without waiting for the next iteration of the monitoring strategy. Because the Total Maximum Daily Load (TMDL) schedule is not completely synchronized with the monitoring strategy, a given watershed may be in several different stages of the monitoring at any time (see Section 4.5.2 for a discussion of the TMDL strategy).

4.5 PLANNING

When monitoring and assessment are complete and priorities have been set, planning—both mandated and informal—sets the stage for implementation. Mandated planning activities may have statewide impact, such as this document, and the Comprehensive Planning Process required of all states by U.S. EPA. They may focus on individual watersheds, as in the Watershed Restoration Action Strategies required by the Clean Water Action Plan, or development of TMDLs. Non-mandated planning activities include watershed project plans developed at the local level, and planning tools such as the diagnostic and feasibility studies carried out under the IDNR's Lake and River Enhancement Program or the former U. S. EPA Clean Lakes Program.

4.5.1 Watershed Restoration Action Strategies (WRASs)

Watershed Restoration Action Strategies are required for incremental funding under the Clean Water Action Plan, which states that "States and tribes should work with public agencies and private-sector organizations and citizens to develop, based on the initial schedule for the first two years, Watershed Restoration Action Strategies, for watersheds most in need of restoration." These Strategies are essentially large-scale coordination plans for eight-digit hydrologic units targeted by the Unified Watershed Assessment. In Indiana, 11 such units were designated for restoration by the FFY 1999 Unified Watershed Assessment. Each year, the Assessment will be refined further as additional

information becomes available, and targeted areas will become more specific, perhaps to the 14-digit level. This will require amendments to the Strategies, which must be flexible and broad enough to accommodate change. These Strategies will also foster greater cooperation among State and Federal agencies, which should result in more effective use of personnel and resources. The downside of these Strategies is that areas which are not targeted for restoration will be at some disadvantage for funding and technical assistance to carry out watershed protection projects, which are also essential components of watershed management.

IDEM and NRCS will be the lead agencies in the development of the Watershed Restoration Strategies, in partnership with IDNR Division of Soil Conservation, IDNR Division of Fish & Wildlife, and the IDNR Division of Nature Preserves. At the local level, the Soil and Water Conservation Districts and individuals involved in the locally-led conservation process will be asked to participate. Other State and Federal agencies, such as the U. S. Forest Service, will need to be involved in certain watersheds, as circumstances dictate.

The Watershed Management Section at IDEM has recently contracted with NRCS to add two Resource Conservationists to the staff whose principal responsibility will be the development and coordination of WRASs and providing assistance in watershed planning to the local level. WRASs are due to be submitted to U.S. EPA in March 2000 for review..

4.5.2 Total Maximum Daily Loads (TMDLs)

Pursuant to Section 303(d) of the CWA, all States must submit to U.S. EPA a list of waters where water quality problems (defined as non-attainment of water quality standards) exist or are expected to occur. These are called impaired waters. The purpose of the program is to identify sources of pollution and to determine maximum pollutant loads allowed into the waterbody to meet and maintain water quality goals and standards. As required, Indiana has submitted its lists by April 1 of each even year (the last list was submitted in April 1998). The 1998 List also identifies which waters are targeted for TMDL development in the following two years, with a schedule for development. States have primary responsibility for developing the 303(d) List, setting priorities and developing and implementing TMDL plans.

Once the monitoring and modeling phases of a TMDL are completed, the pollutant load entering the water body is limited in two ways. Point sources implement Waste Load Allocations (WLA) through enforceable water quality-based discharge limits (NPDES permits) under Section 402 of the CWA. The Load Allocation (LA) for nonpoint sources is implemented through a wide variety of State, local and Federal programs (as described in part in Chapter 5.0) as well as voluntary actions by committed citizens. The NPS Program will be responsible for working with citizens and agencies on a voluntary basis to develop plans for implementing the nonpoint source component of TMDLs through watershed planning and CRM efforts by 2015. As resources allow, these efforts will be supported by a portion of the grant funding made available to the states through Section 319, 104(b)(3), 205(j), and the State Revolving Fund NPS Program. The State recognizes that these resources, which are thinly spread, will not be sufficient to restore impaired waters, and effective partnerships with other agencies and with local citizen groups will be needed in order to manage nonpoint source pollution successfully in the desired three to five year timeframe.

The IDEM has developed an internal strategy to carry out the data collection, planning and public outreach components of TMDLs. This Strategy is being piloted in the Wildcat Watershed and the Grand Calumet to determine if it will be an effective mode of operation. The draft Strategy maps

out a three year process during which the TMDL Program, administered by the Office of Water Management, will collect and analyze data, model the sources of pollution, calculate allowable pollutant loads, , interact with the public, and development implementation plans. During those three years, IDEM will characterize the extent and magnitude of the impairment, develop TMDLs that will ensure the attainment of water quality standards, and begin to implement plans to accomplish these TMDLs. Throughout this process, IDEM will encourage public participation. The Strategy involves the following:

- **TMDL COORDINATING GROUP:** An internal IDEM TMDL Coordinating Group has been formed to coordinate the activities related to development of TMDLs (the TMDL Program). The TMDL Coordinating Group meets monthly, chaired jointly by the Chiefs of the Assessment and Planning Branches of the Office of Water Management. To assist the Coordinating Group, it will be necessary to call upon IDEM staff from a variety of areas including, but not limited to, operator assistance; permitting; compliance; drinking water; land; enforcement; watershed management; legal counsel; and data management. Teams and subgroups of the TMDL Coordinating Group may be formed to carry out essential responsibilities as required. The NPS Program is represented on the Coordinating Group by the Section Chief and designated staff of the Watershed Management Section, Planning Branch. The day-to-day work of TMDL development is carried out by the TMDL Team, which is housed in the Assessment Branch of the Office of water Management.

- **TMDL SCHEDULE:** The Office of Water Management at IDEM is in the process of reorganizing its work activities around a five year rotating basin schedule. The waters of the state have been grouped geographically into six major river basins, and water quality data and other information will be collected and analyzed from each basin (or group of basins) once every five years. The schedule for implementing the TMDL Strategy is proposed to follow this rotating basin plan to the extent possible. All TMDLs currently on the 303(d) list will be completed by 2015. (See Appendix II for the 303(d) List and TMDL schedule.)

- **PHASING:** The TMDL Strategy discusses activities to be accomplished in three phases**.** Phase One involves planning , sampling and data collection and would take place the first year. Phase Two involves TMDL development and would occur in the second year, and Phase Three is the TMDL plan development and actual implementation, and would begin in the third year. It is expected that some phases may take more than one year to fully accomplish. Implementation of TMDL plans is expected to take from three to five years, provided adequate resources are available. However, restoration of water quality may take longer depending on the nature of the impairment (example: an impaired biotic community may not be restored until the aquatic species are fully re-established, which could take as long as 10 to 15 years in some cases, even though the habitat has been restored or the pollutant problem abated in a shorter period of time). Note that until data collection and analysis are complete, it will not be known which components of impairment are due to point sources and which may be due to nonpoint sources.

- **ACTIVITY REFERENCE GUIDE:** Initially, as part of the TMDL Strategy in a watershed, the TMDL Program Manager, in coordination with the Basin Coordinator of the target basin, will develop an activity reference guide for each TMDL. This activity reference guide will provide: (1) a list of the necessary activities and tasks, (2) a schedule for completing activities and tasks associated with an individual TMDL, and (3) a roster that

indicates which Section, staff, and /or contractor are responsible for completion of each activity/task.

- **PLANNING WITH STAKEHOLDERS:** In Phase Three, the TMDL scenario chosen during discussion with stakeholders during Phase Two will be used to develop a plan to implement the TMDL. During this process, stakeholder participation will be essential. The Basin Coordinator, in conjunction with the stakeholder groups, will develop a plan to implement the TMDL. Once the draft plan has been finalized through comments from stakeholder groups and IDEM, the plan becomes "draft-final" and open for review by the public. Public meetings will be held in areas affected. The NPS Program will be primarily involved with Phase Three, although interaction with stakeholders will start in the first year of the TMDL. The NPS Program will also be able to contribute land use data and other information to those who are carrying out the data collection and modeling portions of the TMDL.

4.5.3 Watershed Planning Processes at the Local Level

The NPS Program and its partners advocate a watershed planning process built on consensus-based decision making at the local level. This process is useful for project planning in small watersheds, usually less than 150,000 acres, where local citizen groups can play a vital role in water resource management. This approach has grown out of the NRCS resource conservation planning process, coupled with Coordinated Resource Management (CRM), a decision-making process developed in the Western United States to solve range management issues. In order to promote this approach, which breaks the planning process into steps and relates them to the activities of groups at the community or watershed level, the NPS Program has sponsored a number of CRM workshops with NRCS, and helped author the *Watershed Action Guide* for the W.A.T.E.R Committee in order to make the process accessible to a broad audience. In addition the NPS Program promotes numerous other sources of planning assistance, such as the Conservation Technology Information Center (CTIC) "Know Your Watershed" series of documents, which the Indiana NPS Program supported with grants in its early stages.

5.0 WATERSHED AND NONPOINT SOURCE MANAGEMENT AT IDEM: STRUCTURE AND PROGRAMS

Key Element: 3: **The State uses a balanced approach that emphasizes both State-wide nonpoint source programs and on-the-ground management of individual waters where waters are impaired or threatened.**

Key Element 4: **The State program abates known water quality impairments from nonpoint sources and prevents significant threats to water quality from present and future nonpoint source activities.**

Key Element 8: **The State manages and implements its nonpoint source program efficiently and effectively, including necessary financial management**.

The efforts described in the previous Chapter are fruitless if implementation is not a vital part of the overall NPS Program. Implementation is carried out by many groups and agencies at different levels. This chapter summarizes the Federal, State and general local authorities that are available in the State of Indiana to address nonpoint source pollution, and programs that implement aspects of nonpoint source pollution management. The chapter is organized in the following sections:

5.1 LEGAL AUTHORITIES

Like most States, Indiana does not have a general, comprehensive nonpoint source pollution statute, but there are many ways in which the State can and does control these sources of pollution. Generally, States control nonpoint sources of pollution either through the regulation of certain activities or through non-regulatory approaches, such as education, incentives and technical assistance. A variety of State laws can be applied to control nonpoint source pollution. For example, States have enacted statutes that provide authority to regulate land uses, such as forestry and agriculture. These might focus on activities such as concentrated animal feeding operations (CAFOs), fertilizer application, pesticide application, land development or onsite sewage disposal systems, addressing management of related nonpoint source pollution.

Regulatory tools available to the State include administrative orders, injunctions, civil penalties, criminal fines and sentences, summary abatement and cost recovery. Most tools currently available to State regulators which may assist in controlling nonpoint sources of pollution, however, rely primarily on non-regulatory, voluntary approaches which utilize various incentives to encourage or discourage certain conduct but which cannot be enforced against one who chooses not to participate.

5.1.1 Statutes and rules

In Indiana, the control of water pollution generally is delegated to the **Water Pollution Control Board** within the Indiana Department of Environmental Management. The Water Pollution Control Board is an independent board consisting of eleven members with qualified knowledge, experience or education. The Water Pollution Control Board "shall adopt rules for the control and prevention of pollution in waters of this state with any substance which is deleterious to the public health or to the prosecution of any industry or lawful occupation, or whereby any fish life or any beneficial animal or vegetable life may be destroyed or the growth or propagation thereof prevented or injuriously affected." (IC 13-1-3-4) The Board may adopt rules necessary to implement the Federal Water Pollution Control Act and the Federal Safe Drinking Water Act. Because water pollution control laws are "necessary for the public health, safety, and welfare, [they] shall be liberally construed to effectuate the purposes" of these laws. (IC 13-18-3-11)

Indiana Code 13-18-4-5 provides that a person may not "cause, permit or suffer to be... drained, allowed to seep, or otherwise disposed into any waters... any organic or inorganic matter that causes or contributes to a polluted condition of any waters" in violation of adopted water quality standards. Indiana also has various statutory provisions which prohibit the discharge of listed substances or materials into the water or onto areas which may affect water. This authority is not limited to point sources of pollution. Indiana Code 13-20-2-1 prohibits depositing contaminants on land that "creates or would create a pollution hazard that violates or would violate a rule" as well as depositing any "solid waste... in or immediately adjacent to a lake or stream."

The State permitting scheme covers only point sources; no permits are required for nonpoint source discharges of pollutants. (327 IAC 5-2-4(4)) However, IDEM has the general authority to "take appropriate steps to prevent pollution that is determined to be unreasonable and against public interests in view of the condition in any stream or other waters" of the State. (IC 13-18-4-4) In addition, in an administrative, licensing or other procedure, a "program, product, or conduct that: (1) has; or (2) is reasonably likely to have; the effect of impairing, polluting, or destroying the environment may not be authorized, approved, or permitted to continue if there is a feasible and prudent alternative consistent with the reasonable requirements of the public health, safety, and welfare." (IC 13-30-1-6)

The Water Pollution Control Board, which has relatively broad powers to address sources of and activities contributing to water pollution, has adopted a policy of nondegradation of water quality which is applicable to all surface waters and is not limited by pollutant source. This policy states that "existing beneficial uses shall be maintained and protected. No degradation of water quality shall be permitted which would interfere with or become injurious to existing and potential uses." (327 IAC 2-1.5-19) Several "waters of high quality" were designated and those waters must be maintained at the water quality existing in 1977 without degradation.

The **Soil Conservation Board** within the Indiana Department of Natural Resources was established to address improper land use practices. (The composition and responsibilities of the Board are set forth in IC 14-32-2.) The Board is to offer:

> appropriate assistance to the supervisors of soil and water conservation districts to carry out district powers and programs. Keep the supervisors of districts informed of the activities and experience of all other districts and facilitate cooperation and an interchange of advice and experience among districts. Coordinate the programs of the districts as far as this may be done by advice and consultation. Secure the cooperation and assistance of the United States and state agencies in the work of the districts. ... Coordinate the erosion and sediment part of... Section 208 [of the Federal Water Pollution Control Act and] other erosion and sediment reduction programs that affect water quality, in cooperation with state and federal agencies and through districts.... (IC 14-32-2-12)

While the Board's mandate is primarily to work cooperatively with other governmental entities to develop land and water protection plans through voluntary methods, the Board is authorized to develop a Statewide regulatory program "after all reasonable voluntary approaches to erosion and sediment reduction have been exhausted." (IC 14-32-2-12(9)) To date this regulatory authority has not been exercised.

Soil and Water Conservation Districts also exist within the State of Indiana as governmental subdivisions. (The Districts powers and duties are set forth in IC 14-32-5.) The Districts are authorized to carry out a variety of functions, including the following:

> carry out soil erosion and water runoff preventive and control measures...; construct, improve, operate, and maintain the structures that are necessary or convenient for the performance of any of the operations authorized...; cooperate or enter into agreements... in the carrying on of conservation operations...; obtain options upon and acquire... real or personal property or rights or interests in property; maintain, administer, and improve property acquired...; develop or participate in the development of comprehensive plans for the proper management of soil and water resources...; require an occupier of land not owned, or controlled by the state, as a condition to extending benefits... enter into agreements or covenants concerning the use and treatment of the land that will tend to: prevent or control soil erosion; achieve water conservation and water quality protection.... (IC 14-32-5-1)

In addition, the Districts are authorized to adopt rules and regulations consistent with this Article in order to "carry into effect the purposes and powers of this article." (IC 14-32-5-1(17)) State

agencies, county or other governmental subdivisions of the State with jurisdiction over publicly owned land "shall cooperate to the fullest extent with the district to effect programs and operations undertaken by the district..." (IC 14-32-5-7)

Indiana prohibits the drainage or placement of material into State waters that causes or contributes to a polluted condition such that "any fish life or any beneficial animal or vegetable life in any waters may be destroyed or propagation thereof prevented or injuriously affected." (IC 13-1-3-8) While this provision does cover nonpoint sources of pollution, it requires proof of harmful effects on living organisms in the allegedly affected waterbody. **The Ditch Act** provides for permitting by the IDNR of ditching and drain activities within one half mile of any lake greater than 10 acres in size. IDNR may not issue a permit if such activity will result in "unreasonably detrimental effects upon fish, wildlife, or botanical resources." (Ind. Code Ann. 14-26-5-1 et seq.) The Ditch Act is enforceable by injunction, notice of violation, civil penalty or petty criminal prosecution. Ind. Code Ann. 14-26-5-16, 14-26-5-17 and 14-10-2-6. In the absence of specific provisions protecting fish and wildlife, Federal and State endangered species acts may be applicable, though more limited, in controlling pollution sources.

Indiana is currently in the process of developing a source water protection plan to be funded under Section 1452 of the **Safe Drinking Water Act**. While public water systems using ground water must comply with the wellhead protection program, there are no comparable comprehensive source water assessment or protection programs for surface water systems (although many regulatory programs, including the NPDES permit program, CAFO regulations, and underground storage tank regulations all contribute to surface water protection). Indiana's source water assessment plan (SWAP) will identify and delineate source water areas (watersheds and delineated wellhead areas) for each public water system in the State. In the identified source water areas, the State will inventory the potential sources of contamination and a list of contaminants of concern, and assess water system susceptibility to contamination. The State recognizes that both point and nonpoint sources in the watershed and recharge areas for aquifers may release contaminants which can impact surface and ground water.

State public health laws may address specific instances or sources of nonpoint source pollution where public health is or may be adversely affected. Onsite sewage disposal systems (septic systems) are usually regulated by local building codes and health officials. In Indiana, standards for residential sewage disposal are promulgated by the **Indiana State Department of Health** by rule. (410 IAC 6-8.1) Rule 8.1 addresses residential sewage disposal systems and is administered by the local boards of health through their health officer. Section 8 defines a residential sewage disposal system failure as a health hazard. Section 31 states that "no person shall throw, run, drain, seep, or otherwise dispose into any of the surface waters or ground waters of this state, or cause, permit, or suffer to be thrown, run, drained, allowed to seep, or otherwise disposed into such waters, any organic or inorganic matter from a dwelling or residential sewage disposal system that would cause or contribute to a health hazard or water pollution." A person may be ordered to connect to a sewage treatment system or service if it is determined to be "in the interest of the health, safety, convenience, and welfare of the residents of an area." (IC 13-18-15-1) This rule is enforced through the issuance of an order from the local health officer stating the nature of the violation and setting a time limit to correct the violation.

Indiana has both common law and statutory nuisance provisions. Nuisance laws usually provide for the abatement of the conditions which are dangerous to public health or are otherwise noxious or offensive. Indiana has declared that whatever is "injurious to health, indecent, offensive to the senses, or an obstruction to the free use of property, so as essentially to interfere with the comfortable enjoyment of life or property" is a nuisance and may be subject to legal action. (IC 34-19-1-1) Successful nuisance actions in Indiana may result in the condition or activity causing the nuisance being enjoined or abated and the offender subject to payment of damages. (IC 34-19-1-3) In Indiana, as in many States, agricultural and industrial activities are not subject to public and private nuisance actions by virtue of any changed conditions in the vicinity if they have been operating for more than one year, they were not a nuisance when they began operations, and there was no significant change in their operations. This exemption does not apply if the nuisance is a result of negligent operations. (IC 34-19-1-4)

Indiana requires certification and licensing of all pesticide users "for hire" and no person may engage in the business of using a pesticide "on property of another for hire at any time." (IC 15-3-3.6-6) Any "competent person who is not a licensed applicator for hire may use a pesticide under the direct supervision of a licensed applicator." (IC 15-3-3.6-7) Indiana also requires that each "pesticide product that is produced, distributed, sold, displayed, or offered for sale within this state or delivered for transportation or transported... shall be registered in the **Office of the State Chemist.**" (IC 15-3-3.5-5) Indiana Code sec. 15-3-3.5-10 provides for a list of "restricted use pesticides" and "pesticides for use by prescription only" for the entire State or for designated areas when characteristics of pesticide are such that restricted sale, distribution or use is "necessary to prevent undue hazards to persons, animals, wildlife, lands, or waters other than the intended pests." Indiana enforcement mechanisms for violations of State pesticide laws and regulations include registration and licensing actions, injunctions, orders and civil penalties. (IC 15-3-3.5-1 et seq. and IC 15-3-3.6-1 et seq.)

Many laws relating to floodplains are designed to qualify a community for participation in Federal flood insurance programs, often subject to State approval. In Indiana, it is unlawful to make any deposit or excavation in a floodway without a State permit from **IDNR**, and such permit will be granted only if the activity will not result in "unreasonable hazard to the safety of life… [or] unreasonable detrimental effects upon fish, wildlife, or botanical resources." (IC 14-28-1-22) Permits are not required for a variety of activities, including agriculture, if they do not involve any structure, obstruction, deposit or excavation. (310 IAC 6-1-9) Enforcement is by injunction, criminal prosecution and civil penalty of up to $1,000 per day. (IC 14-28-1-31 through IC 14-28-1-36) In addition, deposits or excavations in a floodway which cause unreasonable hazards to the safety of life or unreasonable detrimental effects upon fish, wildlife, or botanical resources are considered to be a public nuisance, subject to appropriate State action to enjoin or abate the nuisance. (IC 14-28-1-21) The State of Indiana also directly prohibits depositing contaminants in, upon or within fifteen (15) feet of a lake or within a floodway, but the prohibition does not apply to persons applying or using chemicals in a normal manner for agricultural activities or to persons acting in compliance with a valid discharge permit from IDEM or IDNR. (IC 14-28-1-27)

The water pollution control laws are enforced pursuant to IC 13-30-3 or 13-14-2-6. Title 13 Article 30 covers enforcement and legal actions; Chapter 3 sets **procedures for investigations of violations** and administrative proceedings and orders. Upon determination that a violation has occurred, IDEM must provide notice to the alleged violator of the violation and shall offer to enter into an agreed order providing for corrective actions and a civil penalty, if appropriate. (IC 13-30-3-3) If the alleged violator does not choose to enter into an agreed order, IDEM then issues a notice specifying

the violations including an order requiring specific corrective actions and a civil penalty. (IC 13-30-3-4) Penalties include orders to cease and desist from the violation, monetary penalties, corrective actions, and/or revocation, conditioning or modification of a permit. (IC 13-30-3-11) Civil penalties are not to exceed $25,000 per day of any violation. (IC 13-30-4-1) Emergency orders pursuant to IC 13-14-10-1 impose an additional civil penalty not to exceed $500 per hour of violation. (IC 13-30-4-2) Indiana Code sec. 13-14-10-1 provides that the governor may issue an emergency order if contamination of air, water or land presents a "clear and present danger to the health and safety of persons in any area." The State may also file suit to "immediately restrain" and enjoin the discharge. (IC 13-14-10-2) Chapter 6 provides for criminal penalties for intentional, knowing or reckless violations of environmental management laws, water pollution control laws or rules and standards adopted by a board. (IC 13-30-6)

Title 13 Article 14 covers powers and duties of the **Indiana Department of Environmental Management** and its boards. Indiana Code sec. 13-14-2-6 permits legal actions by the Commissioner of the IDEM to enforce a final order, collect penalties or secure compliance with Title 13 or any standard or rule.

In addition to actions taken by IDEM or any of its boards, citizens, certain governmental entities and businesses or associations with offices in Indiana may also pursue legal actions for declaratory and equitable relief to enforce the State's pollution control laws. These parties may only maintain such an action after providing notice to the IDNR, IDEM and the attorney general. (IC 13-30-1-2) If one of the agencies provided notice proceeds diligently with an administrative or civil action, then the individual or entity providing notice may not proceed with an independent legal action. (IC 13-30-1-3)

5.1.2 Clean Water Act Section 404 permits

Hydromodification activities include earthmoving, construction and maintenance activities in or adjacent to waterbodies. Most states require permits, either independent of or related to Clean Water Act Section 404 permits, for certain activities to alter waterways or to maintain prior drainage ditches, dams or diversions, with the overall goal of protecting wetlands. Not all states apply these provisions to reduce nonpoint source pollution.

There are five basic categories of State permits: stream alteration, regulation of agricultural drainage, dam safety and operation, State wetlands, and floodplains. Permits for stream alterations often overlap with Section 404 permits, though States without such provisions can use Section 401 water quality certification to affect impacts on water quality.

Many States have laws providing detailed requirements for work in tidal and nontidal wetlands. Many regulations specify use of forestry and agricultural BMPs, permit requirements, prohibitions of certain activities and other enforceable requirements. Many State programs overlap some with Clean Water Act Section 404 permitting, but often cover activities in or near wetlands either not regulated or that would be permitted by a general permit.

The Indiana Department of Environmental Management (IDEM) administers the Clean Water Act Section 401 Water Quality Certification (WQC) Program. IDEM regulates the placement of fill materials, excavation (in certain cases), and mechanical clearing of wetlands and other waterbodies. IDEM draws its authority from the federal Clean Water Act and from Indiana's water quality standards. IDEM regulates activities in conjunction with the U.S. Army Corps of Engineers. Any person who wishes to place fill materials, excavate or dredge, or mechanically

clear (use heavy equipment) within a wetland, lake, river, or stream must first apply to the Corps of Engineers for a Clean Water Act Section 404 permit. If the Corps of Engineers decides a permit is needed, then the person must also obtain a Clean Water Act Section 401 water quality certification from IDEM.

Under Clean Water Act Section 401, IDEM reviews the proposed activity to determine if it will comply with Indiana's water quality standards. The applicant may be required to avoid impacts, minimize impacts, or mitigate for impacts to wetlands and other waters. IDEM will deny water quality certification if the activity will cause adverse impacts to water quality. A person may not proceed with a project until they have received a certification from IDEM. A key goal of the program is to insure that all activities regulated by IDEM meet the no-net-loss of wetlands policy.

Development of Wetland Water Quality Standards

Protecting the quantity and quality of the Nation's wetland resources is a high priority. Wetland water quality standards are currently under development in Indiana. These standards will contain use classifications, narrative criteria, and an antidegradation policy.

Integrity and Extent of Wetland Resources

Wetlands occur in and provide benefits to every county in Indiana. The lack of quantitative information on some aspects of Indiana's wetland resources is a major obstacle to improving wetland conservation efforts. The most extensive database of wetland resources in Indiana is the National Wetlands Inventory developed by the U.S. Fish and Wildlife Service. Indiana's National Wetlands Inventory maps were produced primarily from interpretation of high-altitude color infrared aerial photographs (scale of 1:58,000) taken of Indiana during spring and fall 1980-87. The maps indicate wetlands
to type, using the Cowardin *et al*. Classification scheme. (U.S. Fish and Wildlife Service) The minimum size of a given wetland on National Wetland inventory maps is typically one to three acres. Very narrow wetlands in river corridors and wetlands under cultivation at the time of mapping are generally not depicted, and forested wetlands are poorly described. The most recent and complete analysis of this database was conducted in 1991 by the Indiana Department of Natural Resources. According to the report, Indiana had approximately 813,000 acres of wetland habitat in the mid-1980s when the data were collected (Table 17). Wetland loss or gain since then is not known at this time.

In the 1996-1997 reporting period, IDEM's Water Quality Certification Program, which is Indiana's primary tool for regulating adverse impacts to wetlands, reviewed a total of 922 applications for certification. Of these applications, 451 were approved in 1996, and 400 were approved in 1997. Forty-three were denied in 1996, and 28 were denied in 1997. In addition to the review of certifications, the program worked on additional projects devoted to wetland assessment and wetland protection:

• IDEM staff work closely with the U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, U.S. EPA, and the Indiana Department of Natural Resources to evaluate projects in planning and to coordinate requirements for various state and federal permits related to wetlands.
• IDEM staff began the process of drafting wetland water quality standards and implementation procedures through the Water Quality Certification Program. The standards are anticipated to include narrative biocriteria, antidegradation and use provisions. IDEM anticipates this rulemaking will extend into the early part of 2000.
• IDEM maintains a web page devoted to wetlands and water quality issues. This page is
under development and is expected to include information on the status of Indiana's
wetlands, current laws and rules, conservation programs, and links to other regulatory and non-regulatory wetland programs. The Water Quality Certification staff conduct outreach events at various locations to promote the importance of wetlands and to educate the public on regulations protecting wetlands.
• IDEM is working closely with other regulatory agencies on the development of an
interagency agreement which addresses key issues governing the use of wetland mitigation banks in Indiana.
• IDEM and the Indiana State Department of Health developed guidance regarding the
construction and use of artificial wetlands for wastewater treatment.
• IDEM continues to work closely with all partners in the Indiana Wetland Conservation Plan. Part of the implementation phase of the Plan calls for the development of an Indiana-focused assessment protocol, which is slated for field testing during the summer of 1999 by IDEM and other regulatory agencies.

Wetland Mitigation Study

Wetlands play a vital role in the natural cycling of freshwater. Indiana has lost well over 80% of the pre-settlement wetland acreage. A study funded by a U.S. EPA Wetland Protection Grant is underway to evaluate wetland mitigation effectiveness. IDEM regulates jurisdictional wetlands through certification under Section 401 of the Clean Water Act. Compensatory mitigation is the effort by applicants to offset the negative effects of wetland destruction through the restoration or creation of another wetland. While a number of studies have shown the effectiveness of individual mitigation sites, other studies have discovered a serious lack of successfully constructed mitigation sites. In many cases the applicant did not even attempt to construct the promised mitigation .

This study has been designed to evaluate the effectiveness of compensatory wetland mitigation in Indiana. The study is in two phases. All mitigation sites in the study will be inventoried in the first phase of the study and classified as either constructed, incomplete or no attempt. The second phase will include an acreage analysis, assessment of plant diversity and conservatism, and analysis of the problems which undermine mitigation efforts in Indiana. The study is scheduled to last two years.

5.1.3 CZMA: Coastal Zone Program

The State of Indiana is currently evaluating the benefits of participating in the Federal Coastal Zone Management Program. In 1993, the IDNR was selected as the lead agency to explore the potential for Indiana to join 34 other coastal States and territories in the Federal Coastal Zone Management program. Indiana received its first program development grant from National Oceanic and Atmospheric Administration (NOAA) in 1993. During this time, the Coastal Program developed recommendations on program boundaries, met with other State agencies to discuss the development process, initiated public outreach, conducted research and documented program elements needed to develop a coastal program.

In 1995, IDNR conducted a public work group process to determine the needs and interests of Indiana's coastal region. Following the public work group process, a Blue Ribbon Advisory Panel was formed in 1996 to prioritize the issues raised by the work groups and to provide recommendations to the IDNR to address these issues. Members of the panel included community leaders representing a broad spectrum of interests. The Panel was invited to review these suggestions, and prioritize courses of action and policies needed for Indiana's Lake Michigan region.

The Coastal Program completed its second program development grant in December 1995. Efforts under this grant continued public outreach and several publications were produced to summarize the outreach effort and provide further information. In addition, the program developed data for planning a mitigation process for shoreline erosion and coastal hazards, inventoried priority wetlands, high quality natural areas, and recreational access sites, and continued legal research and documentation of Indiana's management authority in the coastal region.

At their final meeting in 1997, the Blue Ribbon Advisory Panel identified government coordination as a priority for Indiana's coastal region. Among other State efforts, the panel identified the Federal coastal zone management program as a potential means to achieve a higher level of government coordination.

IDNR received its third program development grant in October 1997. Under this grant, the Coastal Program has continued to research and document Indiana's existing legal framework for the management of natural resources in the coastal region, particularly with regard to issues such as shoreline erosion and nonpoint source pollution. In addition, the Coastal Program continues to integrate the issues raised during the public work group process into a Coastal Coordination Plan.

The Coastal Coordination Plan will detail how Indiana's current legal framework meets the requirements of the Federal Coastal Zone Management Program. The Coastal Coordination Plan proposes no new State regulations or laws. The plan is based on a networking approach to linking existing State programs, agencies, and laws into a system that will meet Federal requirements for an effective State coastal management program.

Indiana's Coastal Coordination Program will continue to address issues of local, State, and national concern in the coastal region. Priority areas for the Program are:

- Government coordination and streamlining among State agencies and between State and local government;
- Public access to coastal areas of environmental, recreational, historic, esthetic, ecological or cultural value;
- Habitat protection and restoration of areas designated as areas of particular concern;
- Shoreline erosion and coastal hazards; and
- Public participation in the management of coastal resources.

In 1997, the State began developing a geographic information system (GIS) for the Lake Michigan coastline. Eventually, GIS will contain both historical and current data. This will enable the IDNR Lake Michigan Specialist and local land use planners to analyze coastal conditions to improve decision-making regarding coastal development, shoreline protection and other related issues.

5.1.4 State Forest Management

The State of Indiana promotes several programs designed to encourage the wise management of private forest lands. The Forest Improvement Program (FIP) is concerned with the supply of wood products; the Forest Stewardship Incentive Program (SIP) is designed to encourage stewardship for privately owned woodlands; and the USDA Conservation Reserve Program (CRP) is intended to remove erodible land from row crop production. All of these programs require that the forest owner follow a plan approved by the district forester and involve cost sharing for eligible expenditures. Such expenditures include tree planting, timber stand improvement and critical area stabilization. Planting trees for windbreaks, reforestation, future timber harvest or erosion control may qualify the landowner for cost sharing assistance. FIP and SIP may refund up to 50% of planting costs, while the CRP may refund 50% of the planting costs plus an annual crop rental fee for the mandatory 10 year duration of the program. If the landowner plants trees, grasses or legumes in critical areas (such as forest roads or other areas with erosion problems), he may be eligible for a 50% refund on his expenditures.

The main objective of the Forest Land Classification Act is to encourage better private woodland management and protection. Classified forests are areas of 10 acres or more, supporting a growth of native or planted trees, which have been set aside for the production of timber and wildlife, the protection of watersheds, or the control of soil erosion. Lands designated as such by the State forester are eligible for assessment at $1.00 per acre and taxes are paid on that assessment. The Classified Forest Act requires the classified forest owner to follow minimum standards of good timber management as prescribed by the Department of Natural Resources, and follow a written

management plan that is approved by the district forester. The plan must be prepared by a professional forester in consultation with and signed by the owner.

Indiana provides tax breaks for forestry operations contingent upon the adoption and implementation of forestry management plans, though consequences of violating the plan or withdrawing from the program is the loss of the tax break and some recapture of the taxes avoided in preceding 10 years.

5.1.5 State Attorney General Certification

The State Attorney General will review the NPS Plan to determine whether certification is required.

5.2 IDEM PROGRAMS WITH NONPOINT SOURCE COMPONENTS

5.2.1 Structure and Organization

Within the IDEM Office of Water Management, the Watershed Management Section has various responsibilities, including administering the Section 319 grants program, coordinating the Unified Watershed Assessment process, participating in the planning and implementation tasks of the TMDL Workgroup Strategy, and promoting watershed planning and a watershed-based approach to water quality improvement. The Section has the lead responsibility in carrying out the NPS Program and maintaining a current NPS Management Plan.

In order to mature the NPS Program from the earliest days of project planning to comprehensive water resources management, IDEM has been exploring the adoption of a watershed framework for all water-related activities in the agency.

5.2.2 Watershed Approach

Since 1997, IDEM Office of Water Management (OWM) has completed certain steps toward fully adopting the watershed approach. The success of these first steps has reinforced IDEM OWM's commitment to adopt the watershed approach.

One of the first steps towards the watershed approach was the Wildcat Creek Watershed Pilot Project which began in December 1997. During the Pilot, IDEM experienced many successes, including:

- Short-term clean-up of water through the efforts of the Assessment Branch's Survey Section. During their intensive sampling of Wildcat Creek, they identified several areas being impacted by noncomplying point sources and instituted effective corrective measures.
- The formation of watershed groups in Clinton County and Tippecanoe County, which was, however, the result of work by local stakeholders in response to the Initiative rather than a direct IDEM product.
- Watershed training provided for the Office of Water Management by U.S. EPA in April 1999. This training served as a checkpoint for assessing progress in developing a watershed approach and assisted the Office of Water Management in moving forward with the watershed approach.
- Information sharing at the local and State level. Creation of the Wildcat Creek Watershed Network Board provided a conduit to share information among groups

within the watershed and also provided a mechanism for IDEM to learn about local concerns. This contributed directly to bringing onsite sewage disposal problems and their impact on water quality to the attention of IDEM.

- A forum to educate stakeholders on the septic issue through the Septic Workshop held in May 1999.
- A plan for long-term clean-up of water through completion of a draft watershed restoration action strategy. This strategy provides a "one-stop" reference for water quality and watershed characteristics and will ultimately be the basis for cooperation between agencies and groups to improve water quality.
- The greatest successes of the pilot project were the lessons learned, which will shape many future activities of the OWM. They have been incorporated into the developing TMDL Strategy.

The purpose of the Pilot was to learn how to work in a watershed context. The lessons learned through the pilot have helped shape IDEM's TMDL Strategy. For the Office of Water Management, TMDLs and the TMDL Strategy embody the watershed approach to attaining clean water.

Another substantive IDEM OWM step toward adopting the watershed approach was the U.S. EPA Watershed Academy's "Watersheds 102: Statewide Approach to Watershed Management" workshop presented to IDEM OWM employees during April 1999. This workshop brought together representatives from all areas of the OWM for two days of discussions and presentations about the watershed approach. One of the key products of the workshop was the identification of the following critical areas to be addressed in order to develop a watershed approach in OWM:

- Management support: IDEM should provide more managerial continuity, resolve conflicting management priorities, and allocate staff resources to adequately support the development of OWM's watershed approach.
- Resources: IDEM should upgrade its data management capabilities and address the needs of water quality assessment. In addition, development of the watershed approach should be adequately supported by appropriate staff and resources.
- Stakeholder Outreach: IDEM should improve its education and communication avenues with stakeholders. In addition, stakeholder forums are required to actively solicit stakeholder inputs.
- Time frame: The move toward the watershed approach should be measured through environmental and administrative milestones.

IDEM OWM's next step toward fully adopting the watershed approach begins in August 1999. At this time, a core group representing the four branches of OWM will begin the task of outlining the mechanisms and actions to address the critical areas discussed during the workshop. In addition, this core group will be responsible for the development of a draft OWM Watershed Management Framework that includes a detailed basin management cycle. Ultimately, the draft Framework will involve other State agencies and stakeholders.

Along with the formation of the OWM core group, the OWM will be establishing Basin Coordinator positions in order to facilitate the watershed approach and the TMDL Strategy. The Basin Coordinator position is integral to the success of the watershed approach and TMDL development.

5.3 SECTION 319 GRANTS PROGRAM

The Section 319 grants program constitutes a major portion of the OWM/Watershed Management Section's workload. Work plans, grants administration, financial administration, annual and semi-annual reporting, and use of the Grants Reporting and Tracking System (GRTS) are carried out in accordance with U.S. EPA guidance from Region 5.

For information on the involvement of the Section 319 grants program in TMDLs, please see Section 4.5.2.

Table 5-1 shows the Section 319 funding for selected sectors from 1990 to 1999, including both statewide and watershed projects.

TABLE 5-1 SECTION 319 FUNDING BY SECTOR: 1990 TO 1999

Sector	**$$$**
Agriculture: General	2,286,000
Technical Assistance	1,792,000
Mapping & Computer Applications	1,171,000
Education	1,101,000
Groundwater	964,000
Agriculture: Livestock Production	889,000
Urban Runoff	791,000
Erosion (non-ag)	726,000
Lakes	677,000
Wetlands	418,000
Forestry	393,000
Mineral Extraction	362,000
Atmospheric Deposition	311,000
Riparian plantings	236,000
Training	224,000
Total	**12,341,125**

Work plans: The Section 319 grant program follows a cycle dependent on the development and passage of the Federal budget. Although the Federal fiscal year begins on October 1st of each year, final allocations of Section 319 funds may not be certain until December or January. Work plans explaining how the funds will be expended by the State and providing details of individual projects are submitted to Region V by June 1st of each year. Proposals for Base Allocations are submitted one year before the Federal fiscal grant is allocated; proposals for incremental funds will be submitted by February of the Federal fiscal year of the grant. While this time lag is a disadvantage to the sponsors of projects, and awkward for staff, the length of time involved in approval and processing necessitate this schedule. The entire grants award process, from submitting a proposal through contract execution, can take from nine to eighteen months.

Design and oversight of watershed projects: Section 319 projects are normally contracted for two years. Projects fall into several categories: demonstration, education, research, assessment and program development. The application package submitted by the sponsor contains a budget, schedule, description of the problem, proposed activities for addressing the problem, how the project will be evaluated, a project location map and letters of support. Project managers work with the sponsor to refine the application package as needed. This package is used to develop the contract between IDEM and the sponsor. All watershed projects (demonstrations) are encouraged to prepare a watershed plan during the term of the project, if one has not already been written, and the sponsoring group will be given assistance with the plan if they request it.

Projects are assigned to a specific Project Manager who works closely with the sponsoring group, meeting with them at least quarterly, providing technical assistance or referrals to others as needed and handling all paperwork submitted for the project. This oversight is concluded when the project final report and all claim vouchers have been submitted and the contract has been closed.

Targeting of projects: Watershed projects developed under Section 319 must be targeted to watersheds or waterbodies identified as being impaired either in the 305(b) report, the 303(d) List, reports of a State lake program, or in the Unified Watershed Assessment. If a local group has current and credible water quality data identifying impairment in a watershed not targeted by the above documents, that waterbody may also be considered for funding. In addition watershed projects must address one of the Project Objectives listed below. Statewide projects must address one of the Project Objectives and must assist the State in meeting one or more administrative or water quality goals as stated in this document..

Incremental funds received as a result of the Clean Water Action Plan must be targeted to specific watersheds identified each fiscal year in the Unified Watershed Assessment. For FFY 1999, eleven 8-digit hydrologic unit areas were targeted for restoration. During 1999,information for several of these units is being further refined to enable prioritizing smaller watersheds within the 8-digit boundary. The Watershed Section, with the assistance of a multi-agency workgroup, plans to review and refine the UWA each year to assist with targeting watersheds in need of both restoration and protection.

Reporting: Annual and semi-annual reports are submitted to U.S. EPA on April 1 and October 1 of each year. Indiana has streamlined their reports so that they are easier for U.S. EPA to review. The Semi-annual Report covering September 1, 1998 through February 28, 1999 was submitted to U.S. EPA electronically through the GRTS Feedback database. All subsequent annual and semi-annual reports will be submitted to U.S. EPA in this format. Reports include a summary of each open project's progress, as well as copies of final reports for projects that have closed since the last report. In addition, web sites for any projects with information on the Internet are referenced.

GRTS (Grants Reporting Tracking System): Indiana began utilizing the Grants Reporting and Tracking System in 1996. At that time only the mandated elements were entered, due to the difficulties of working on the mainframe system. With improved software developed by U.S. EPA, Indiana has greatly increased its use of the GRTS database. In March 1999, all Project Managers were trained on the system. Project Managers enter all information for their projects, including quarterly and final reports as text documents. Quarterly and final reports are either summarized or

copied electronically into GRTS. This database is available nationally so that States may view each other's project information.

Project QA/QC and monitoring component: Nonpoint source projects are required to include appropriate monitoring to gauge the effectiveness of the project. In many cases, this involves water quality monitoring. Depending on the goals of the project, the water quality monitoring plan may be detailed and tailored to obtain specific water quality data with which to make decisions. Monitoring plans may also utilize volunteers to test the streams and rivers for educational purposes, detecting possible problems or determining trends. When environmental data is being collected during the course of a nonpoint source project, a Quality Assurance Project Plan (QAPP) must be developed, submitted and implemented. The QAPP is reviewed by the Watershed Management Section's Quality Assurance Manager to ensure that the data collected will be of known and suitable quality and quantity and that it meets U.S. EPA requirements and the project's needs.

Depending upon the type of project and the goals of the project, environmental monitoring may not be appropriate to determine the effectiveness and success of a project. Additional types of monitoring activities include: tracking the number of people attending an event; determining how many acres of land are affected by the project; assessing the results of surveys; and other kinds of monitoring specific to the goals of the project.

5.3.1 Project Objectives

Projects proposed for Section 319 funding must address one of the twelve objectives outlined below, as determined by the NPS Task Force. Projects must also assist the Program in meeting one or more administrative or water quality goals expressed in Section Two or Section Seven of this document. Nonpoint source pollution projects carried out under other programs are encouraged to address these objectives. The project objectives are described according to the type of human activity or nonpoint source pollution addressed.

1. Agricultural production:

The purpose of these projects is to reduce sediment, nutrient, pesticide and pathogen loading from crop and livestock production. These projects should utilize practices, measures and management methods which will: reduce sediment delivery to surface waters; reduce loadings of nutrients, pesticides and pathogens into surface and ground water; and provide research and educational opportunities to develop and promote new sediment reduction technology and new pollution control technology. Farms which participate in a watershed project must have a nutrient and pesticide management plan developed with the assistance of Conservation Partnership personnel or a Certified Crop Advisor. This plan must be signed by the landowner or operator. The Nutrient and Pest Management Checklist provided by NRCS may be used to document this planning activity. Farm fields where Best Management Practices are installed with cost-share from a Section 319 grant must utilize appropriate conservation tillage practices. Note: Farms which require NPDES permits under the Confined Feeding Rule or subsequent rules are not eligible for cost share from a Section 319 grant, for any practices required by the permit.

2. Streambank/shoreline erosion and aquatic habitat degradation:

The purpose of these projects is to reduce or remediate the erosion of streambanks and lake shorelines, and the associated loss or degradation of aquatic habitat. These projects should utilize practices, measures, and management methods which will: reduce streambank and

shoreline erosion from agricultural practices, land development, transportation or other causes; establish riparian vegetation; improve aquatic habitat; and provide research and educational opportunities to develop or promote new habitat protection or enhancement technology. Streambank and shoreline erosion control project plans must take into account: the hydrologic system of the watershed above the project area; any planned or existing hydrologic modifications; land use and land use trends; and applicable laws and restrictions. Aquatic habitat enhancement projects are encouraged to work with the Lake and River Enhancement Program of IDNR as well as other programs and resources that can assist in project design. NOTE: Small dredging projects intended to remove contaminated sediments which are hindering the development of a healthy aquatic ecosystem may be funded; however, dredging in order to improve drainage, for flood control, to increase reservoir capacity or to improve navigation is not an accepted project activity.

3. Land application of non-agricultural wastes:

The purpose of these projects is to reduce polluted runoff from land application of non-agricultural wastes. Projects should incorporate practices, measures and management methods which will reduce pollutant loading from land application of non-agricultural wastes. Project plans must take into account soil characteristics, soil conditions and hydrogeologic vulnerability.

4. Timber harvesting and loss of forest lands:

The goal of these projects is to reduce polluted runoff from timber harvesting and to minimize the environmental impact of forest land conversion. These projects should utilize practices, measures and management methods which will reduce pollutant loading from timber harvesting activities or reduce loss of forests due to land use changes. Practices may include establishing or protecting riparian vegetation and improving aquatic habitat. Projects should also provide educational opportunities to promote new timber harvesting technology that has environmental benefits. Project plans should take into account forest management activities associated with timber harvesting, grazing of woodlands with livestock or over-abundant wildlife populations, forestation practices, and conversion of forest land to other uses.

5. Land development:

The purpose of these projects is to reduce polluted runoff and habitat degradation resulting from land development activities. They should incorporate practices, measures and management methods which will reduce erosion and pollutant loading from land development. Projects should also provide research and education opportunities to develop or promote technology which reduces the environmental impact of land development. Projects should include consideration of present and planned impervious areas, stormwater runoff, quality of runoff water, effects on stream and lake hydrology, and stormwater management. Project sponsors are encouraged to explore linkages with other grant sources and other agencies which have jurisdiction or provide assistance in this area.

6. On-site sewage disposal:

These projects should reduce pollutant loading to streams, lakes, and ground water from inappropriate or failed on-site sewage disposal systems. These projects should utilize practices, measures and management methods which will reduce pollutant loading to surface or ground water from improper disposal of residential wastes. They should also provide research and education opportunities to develop or promote new technology which can

reduce pollutants from residential waste. Project plans should consider soil type, hydrogeologic vulnerability, applicable rules and regulations and economic factors. Project sponsors are encouraged to team up with local health departments in developing proposals.

7. Landfills:

The purpose of these projects is to reduce polluted runoff from solid waste disposal activities. They should utilize practices, measures and management methods which will reduce pollutants in runoff from landfill sites. Grant funds will not be used to fund attainment of NPDES requirements or to treat end-of-pipe discharges. Project sponsors are encouraged to explore linkages with the IDEM Office of Land Quality and local Solid Waste Management Districts.

8. Transportation:

These projects are aimed at reducing polluted runoff from transportation facilities and transportation facility construction. These projects should incorporate practices, measures, and management methods which will reduce pollutants in stormwater runoff originating from transportation-related facilities. The focus of the project may be on either transportation-related construction or existing transportation facilities. Project sponsors are encouraged to explore linkages with the Indiana Department of Transportation for funding and project design.

9. Coal mining:

The purpose of these projects is to reduce polluted runoff and acid mine drainage into streams and lakes from present and past coal extraction activities. Projects should utilize practices, measures and management methods which will reduce sediment, acid drainage and other pollutant loading from coal extraction activities. Grant funds will not be used for measures required by any permit. Project sponsors should work with IDNR Division of Reclamation and, where possible, the Office of Surface Mines.

10. Oil and gas production:

The goal of these projects is to reduce polluted runoff to surface and ground water from present and past oil and gas extraction activities. Projects should incorporate practices, measures and management methods which will reduce polluted runoff from oil and gas extraction activities, including oil and gas waste products, sediment and brine. Projects should also provide research and education opportunities leading to remediation of abandoned oil and gas well sites. Project sponsors should work with IDNR Division of Oil and Gas to assist with project development.

11. Non-energy mineral extraction:

These projects should reduce polluted runoff from non-energy mineral extraction activities. Projects should utilize practices, measures and management methods which will reduce polluted runoff from non-energy mineral extraction activities.

12. Atmospheric deposition:

The goal of these projects is to reduce transfer of pollutants between air and water media and abate deposition of nonpoint source pollutants through atmospheric transport. Projects should incorporate practices, measures and management methods which will reduce the transfer of pollutants between air and water media. Projects should also conduct research to determine the relative contribution of atmospheric pollutants in common nonpoint source

pollution situations. Any such research must result in practical and feasible recommendations for pollution abatement.

Use of cost share funds: cost share funds from Section 319 grants **MAY NOT** be used to reimburse a sponsor for the following:

- Purchase of agricultural equipment, or other large pieces of equipment (other than project supplies used up during the project, and modest computer hardware/software purchases)
- Purchase of land or land easements
- Purchase of food for events
- Dredging of clean sediments, or large amounts of contaminated sediments
- Any practices, equipment, or supplies used to fulfill the requirements of any federal permit (or permit due to a federal regulation)
- Fees to obtain a permit for a project, such as a building permit
- End-of-pipe effluent mitigation for discharges connected to any federal permit (or permit due to a federal regulation)
- Practices not sanctioned by IDEM or a partner agency of IDEM
- Practices not installed in accordance with standards and specifications developed or approved by IDEM or a partner agency of IDEM (such as NRCS or IDNR)
- Any project use which is directed at water quantity rather than water quality, such as flood control, drainage, or channelization.

Cost share funds **MAY** be used for installation of Best Management Practices, lease of equipment needed by the project, salaries or subcontracts for personnel essential to the project, reimbursement for professional services required by the project, travel expenses of essential personnel, training, research costs, supplies needed by the project, development of outreach and educational materials, data collection, and other expenses deemed appropriate in U.S. EPA Section 319 Guidance.

Matching funds and in-kind resources may be used for any of the appropriate purposes above; in addition, match funds may be used for land easements in cases where the sponsor can remain responsible for the continuance of the easement until its conclusion, and where the purpose is to restore vegetation, hydrologic function, or some other characteristic which will have a positive effect on water quality. The time invested by a farmer or other participant in a project is also an allowable in-kind match and should be assigned an hourly value which is appropriate. The usual match required is 25% of the project total cost. For additional details concerning the use of grant funds and matching, contact the Watershed Management Section of IDEM.

5.3.2 Appropriate Measures and Practices

All Section 319 grant-funded management practices must have technical credibility as evidenced by standards and specifications in a manual or handbook approved for use in Indiana.

The term “Best Management Practice” (BMP) applies to structural and management practices which are used in agriculture, forestry, urban land development and industry to reduce the potential for damage to natural resources from human activities. A BMP may be structural, that is, something that is built or involves changes in landforms or equipment; or it may be managerial, that is, a specific way of using or handling infrastructure or resources. However, a laundry list of BMPs does not constitute an adequate plan.

To be considered a Best Management Practice, a practice must have been selected through a conscious planning process designed to inventory resources and needs, determine available alternatives, weigh their benefits, make decisions, and follow up the selection and implementation of practices with monitoring and evaluation to determine if they are having the desired effect.

Technical agencies and institutions will work to develop new and innovative practices to meet the changing needs of industry and agriculture and to disseminate information concerning new practices.

Primary sources for standards and specifications for BMPs appropriate to Indiana are:

- Natural Resources Conservation Service, *Field Office Technical Guide*;
- The Indiana Department of Natural Resources, Division of Forestry, *Indiana's Forestry Best Management Practices;*
- The Indiana Department of Natural Resources, Division of Soil Conservation, *Construction Site Erosion and Sediment Control;*
- *Lakeshore Protection in Indiana* (IDNR); and
- *The Indiana Drainage Handbook* (IDNR).

BMPs are selected to address specific NPS problems and are usually considered in relation to impacts on surface water. However, consideration must also be given to possible impacts on ground water. The selection of BMPs must weigh expected benefits against impairments in order to strike a reasonable balance. Appendix IV provides a more detailed table of manuals and handbooks containing BMPs.

5.3.3 Summary of Project Eligibility Requirements

To summarize the requirements for Section 319 project grants that are described above:

- Project sponsors must be units of government, nonprofit organizations, or universities;
- The area in which the project takes place must be within the watershed of a waterbody which is:
  - Listed in the current 303(d) list as impaired due to a pollutant that may have a nonpoint source;
  - Listed in the current 305(b) Report as not fully supporting a designated use due to an impairment that may be due to a nonpoint source; or
  - A watershed identified in the Unified Watershed Assessment as being in need of restoration due to nonpoint source impairment.
- Projects of a statewide or regional nature must directly assist the Program in reaching an administrative or water quality goal as detailed in Sections 1 & 7 of this document.
- Projects targeted to a specific watershed must address a water quality goal as detailed in Section 1 and 7 of this document, and must address one or more of the Project Objectives listed in this Section.

5.4 CLEAN WATER ACT SECTIONS 104 AND 205(J) GRANT PROGRAMS

104(b)(3) Planning Grants: This program is designed for projects aimed at reducing and eliminating water pollution at the State level. Eligible public organizations include municipal governments, county governments, conservation districts, irrigation districts, or drainage districts. Typical projects have included flow monitoring, creation of wetlands and retention ponds, pesticide

monitoring, fish tissue sampling and dredging. Many communities have utilized this program to eliminate or reduce the toxic effects of discharges resulting from nonpoint sources of pollution.

The funding for this program is derived from the U.S. EPA under the authority of the Clean Water Act. A five percent (5%) match is required by the community. Usual funding from U.S. EPA Region V ranges from $350,000 to $450,000 per year to the State; the average project selected under this program receives $30,000 to $70,000.

205(j) Water Quality Project Grants: This program is designed for projects aimed at reducing and eliminating pollution at the State level through community planning processes. 205(j) funding was previously allocated through Section 604(b) of the Clean Water Act. Eligible organizations include municipal governments, county governments, conservation districts, irrigation districts, or drainage districts. Typical projects have included identification of appropriate Best Management Practices (BMPs), GIS mapping, stormwater management and feasibility studies.

The funding for this program is provided by U.S. EPA under the authority of the Clean Water Act. A five percent (5%) match is required by the community. Usual annual funding from U.S. EPA Region V to the State ranges from $350,000 to $450,000; the average project receives $30,000 to $70,000.

5.5 CLEAN LAKES PROGRAM

The Clean Lakes Program was established in 1972 as Section 314 of the Federal Water Pollution Control Act (a.k.a. Clean Water Act or CWA). The program had as its goal the provision of financial and technical assistance to States in restoring, enhancing, and protecting lakes with public access. The 1987 Amendments to the Clean Water Act expanded the program to include Statewide assessments of lake water quality conditions, especially with regard to eutrophication levels. There have been no appropriations for this program since 1995.

While it was available, Indiana utilized nearly $557,000 in Section 314 Clean Lakes funding to conduct four Phase I diagnostic/feasibility studies and five seasons of lake water quality assessments across the state. In addition to lake assessments, outreach activities conducted by the Indiana Lakes Program have included publishing and distributing the quarterly lake and watershed newsletter, *Water Column*, as well as providing technical assistance to a variety of lake users.

The lakes program as a whole in Indiana has also received more than $78,000 in financial support through Section 205 (j) and supplemental Section 106 (a) grants, matched by State funds, to conduct individual lake studies and statewide assessments. Since 1996 assessment work through IU/SPEA has also received $240,000 in Section 319 grants. Another $130,000 in FFY 1999 have been earmarked for the program through the spring of 2002. The dollars spent to run the Indiana Lakes Program via the University has proven to be far more economical than could otherwise have been accomplished by IDEM.

The State=s annual lake conference, once planned and conducted by SPEA on behalf of IDEM, is now run by the Indiana Lakes Management Society (ILMS); a statewide non-profit organization. Receiving $40,000 in seed money from 319 grants, ILMS has expanded their educational efforts to include regional fall workshops addressing various lake and watershed issues. IDEM is also investing $15,000 of 319 money in a research project designed to look into the feasibility of developing fish and macroinvertebrate IBIs (index of biotic integrity) for use with lakes and

reservoirs.

Since the *Indiana Lake Classification System and Management Plan* includes recommendations for management activities to reduce point and nonpoint sources of nutrients in the state, it has proven useful to IDEM in determining the eligibility of lakes and their watersheds for receiving Section 319 and other funding. In addition to the efforts mentioned above, IDEM has dedicated approximately $2.3 million in Section 319 funds for other lake-related efforts. These projects have included providing technical assistance and local coordination for lake efforts, implementing and demonstrating BMPs, developing educational material, as well as holding local outreach events. To date 20-30% of all NPS project costs in Indiana (15% of IDEM=s total 319 expenditures) have directly or indirectly benefited Indiana lakes and reservoirs.

The recent addition of a Lakes Coordinator's position to IDEM ensures that lake water quality data is interpreted and reported to the Agency and others in a timely manner. The collection of this data is critical for the State to accurately assess the quality of its surface waters. Continued monitoring is also important in light of the fact that many problems found in Indiana's lakes and reservoirs are directly tied to land use practices and other nonpoint pollution sources. Lake monitoring, improvement, and protection efforts are vital to the long-term health of Indiana's water resources. Until consistent state funding can be secured for lake work in Indiana, it is recommended that the Indiana Clean Lakes Program continue to seek funding through Nonpoint Source grants, and that the Lakes Coordinator work closely with NPS Program staff to this end.

5.6 CLEAN VESSEL PROGRAM

The Clean Vessel Act (CVA) Pumpout Program provides funding to private and public marinas for the installation and restoration of boat sewage pumpouts and portable toilet dump stations. The funding awarded by the U.S. Fish and Wildlife Service provides for a 75% capital cost reimbursement. This money comes from the Sport Fish Restoration and Boating Access Fund, which is generated from a tax on motor boat fuels and fishing equipment. At this time, the CVA has provided funding for 27 different facilities in Indiana and has proposed the addition of 12 others during 1999.

5.7 STATE REVOLVING LOAN FUND PROGRAM (SRF)

The Indiana Drinking Water State Revolving Fund offers low interest loans to political subdivisions for the planning, design, construction, renovation, improvement or expansion of existing public water supply systems. The loans are to be used for projects that facilitate compliance with applicable national primary drinking water regulations under the Federal Safe Drinking Water Act (SDWA), or otherwise significantly further the health protection objectives of the SDWA. The Wastewater SRF operates in a similar manner to aid in the construction of sewers and wastewater treatment systems.

These programs are managed jointly by IDEM and the State Budget Agency. Eligible entities include incorporated cities and towns, counties, conservation districts and regional water districts with existing publicly-owned drinking water facilities. As of August 1999, the program has closed eighty Wastewater loans for a total of $394,159,348 and four Drinking Water loans for a total of $11,500,000.

A Nonpoint Source SRF is under development for Indiana. This program would provide loan funds for installation of BMPs, equipment purchases, and other Project Objectives of the NPS Plan.

5.8 STORMWATER PROGRAMS

The stormwater program at IDEM is a regulatory program directed at control of pollution from point sources (sources where the specific origin of a discharge or runoff is known). The section that follows is provided as background information, since some of the sources controlled by this program are the result of surface runoff (from permitted facilities or sites) as well as pipe discharges, and may therefor be of interest to people concerned about runoff water quality.

In 1992 the State of Indiana promulgated NPDES general permit rules for stormwater discharges from various activities. These rules are found in Title 327 of the Indiana Administrative Code, Article 15, Rules 1-6. Rules 1-4 establish the basic requirements for all NPDES general permit rules. Rule 5 establishes requirements for stormwater runoff associated with construction activity and Rule 6 establishes requirements for stormwater discharges associated with industrial activity.

327 IAC 15-5 (Rule 5) addresses stormwater run-off associated with construction activity which disturbs five acres or more of total land area. The purpose of the Rule is to "reduce pollutants, principally sediment as a result of soil erosion, in storm water discharges into surface waters of the state." Rule 5 requires that an Erosion and Sediment Control Plan (E/SCP) be developed in accordance with 327 IAC 15-5-7 prior to the beginning of the construction activity. This Plan must be fully and properly implemented throughout the duration of the construction activities. The Indiana Department of Natural Resources and the local Soil and Water Conservation Districts help the IDEM implement Rule 5 by providing technical assistance, doing site inspections and reviewing the E/SCPs. Any violations shall be the subject of enforcement under IC 13-7-10-5, IC 13-7-11, IC 13-7-12, 327 IAC 15-1-4, or any combination thereof.

Industrial facilities are required to comply with the Rule 6 general stormwater permit requirements if they meet these three criteria: the facility is identified in any of the categories of industries "involved in industrial activity" as defined in 327 IAC 15-6-4(2)(A)-(J); there are discharges of stormwater "associated with industrial activity" as defined in 327 IAC 15-6-4(2) from the facility; and the stormwater associated with industrial activity at the facility discharges through a municipal separate storm sewer system (MS4) or results in a point source discharge to a surface water of the State. Rule 6 permit requirements include the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP) at the facility and three rounds of storm water sampling per year.

Stormwater is indirectly addressed in three additional NPDES general permit rules found in 327 IAC 15: Rule 7 for Facilities Engaged in Mining of Coal, Coal Processing, and Reclamation Activities; Rule 9 for Wastewater Discharge Associated with Petroleum Products Terminals; and Rule 12 for Facilities Engaged in Sand, Gravel, Dimension Stone, or Crushed Stone Operations. These general permit rules contain specific monitoring requirements for the specific type of discharge.

5.9 WELLHEAD PROTECTION

Under Section 1428 of the Federal Safe Drinking Water Act, States are required to develop wellhead protection programs to protect public water supply systems (PWSSs) from contamination. Indiana's wellhead protection program is delineated in 327 IAC 8-4.1. A wellhead protection plan (WHPP) is

required for each well or wellfield providing ground water to a community public water supply system and is enforceable through administrative or judicial proceedings under IC 13-30-3, with penalties provided in IC 13-14-2, IC 13-30-4 and IC 13-30-6. All community public water supply systems must submit a Phase I wellhead protection plan by March 2002. The Phase I submittal must include, among other items, an "inventory of potential sources of contamination containing a complete list of existing facilities, sites, practices and activities for both regulated and unregulated potential sources of contamination;" a table with information regarding the types of contaminants in the wellhead protection area; and a plan to manage the wellhead protection area, including "management or monitoring measures for all potential sources of contamination... to effectively protect the ground water and drinking water supply." 327 IAC 8-4.1-8. The Phase II submittals must include an update of the inventory of potential sources of contamination and an updated management plan including results of Phase I implementation. 327 IAC 8-4.1-9.

On November 13, 1995, U.S. EPA approved Indiana's Wellhead Protection Program, contingent on the final adoption of the State's Wellhead Protection Rule, which was adopted on July 10, 1996 (effective March 28, 1997) and is codified at 327 IAC 8-4.1.

Rule 4.1 requires all Community PWSSs[11] to complete the elements of the State WHPP. Non-community PWSSs (both transient and non-transient) are encouraged to voluntarily participate in the program, but are not required to do so. If a non-community system chooses to participate in the program, they will receive State approval of their program if it meets the requirements for Community systems. Wellhead protection programs include the following components:

- **Establishment of a Local Planning Team:** Community systems are required to develop a planning team to guide all aspects of the WHPP. This team must have representation from each interest group affected by the program (e.g., industry, agriculture, police, fire, city/county administration, etc.).

- **Delineation of a Wellhead Protection Area (WHPA):** All systems with an annual average pumping rate of 100,000 gallons per day and above are required to define their WHPA through analytical, semi-analytical, or numerical modeling. The area defined must represent a minimum of a five-year time of travel. Systems with an annual average pumping rate of less than 100,000 gallons per day are allowed to use a fixed radius delineation of 3,000 feet.

- **Identification and Inventory of Potential Sources of Contamination:** All systems are required to identify and inventory all potential sources of contamination within the delineated WHPA. The potential source inventory must contain relevant information about the source (i.e., location, owner/operator, applicable permit numbers, type of source, chemicals used/stored/handled, and method of use/storage/handling). A map of the WHPA identifying the locations of potential sources must be developed.

- **Potential Source Management:** The Phase I Strategy (Identification) requires community systems to submit a strategy for managing sources which describes the methods proposed to ensure the source will not contaminate the well. Large systems (those that serve 50,000 or

[11] A Community Public Water Supply System is defined at 327 IAC 8-2-1(6) as a public water supply system which serves at least fifteen (15) service connections used by year-round residents or regularly serves at least twenty-five (25) year-round residents.

more) must submit their Phase I plan by March 2000; medium systems (those that serve 3,300 to 50,000) by March 2001; and small systems (those that serve less than 3,300) by March 2002. The Phase II Strategy (Implementation) requires that WHPPs must be implemented within 5, 7 or 10 years after Phase I approval, depending on the size of the system (smaller systems have more time). The systems are required to document implementation of their management strategy.

- **Contingency Planning:** Systems are required to develop plans which document procedures to follow in case of contamination (e.g., spills, releases). The plan must provide a list of emergency contacts and proposed alternate water supplies.

- **Public Education and Outreach:** Systems are required to educate the public about their WHPP. Specifically, all potential sources must be informed of their location within a WHPA and provided information on the management measures they can implement to minimize the potential for contamination. Educational materials will be developed by the IDEM-Ground Water Section and will be provided to the systems for distribution.

- **New Wells:** The SDWA requires that the State WHPP undertake siting considerations for new wells and wellfields. The Drinking Water Branch currently requires well site approval before submission of construction plans for a construction permit. The WHPP is incorporated into both the well site approval and the construction permit approval processes.

IDEM WHPP staff works directly and indirectly with communities and PWSSs to help them develop their local wellhead protection plans and/or support their efforts: consulting with individual communities; presenting information at workshops, seminars and conferences; developing fact sheets and guidance materials; and working to establish a website. WHPP staff is also responsible for reviewing and approving all the wellhead delineations and Phase I, Phase II and contingency plans that will be submitted by the 890 Community PWSSs within Indiana.

As of March 1999, 17 of the 34 submitted wellhead delineations have been reviewed and approved. Additionally, one of the two submitted Phase I plans has been reviewed and approved.

5.10 CONFINED FEEDING PROGRAMS

The confined feeding program at IDEM is a regulatory program directed at control of pollution from point sources (sources where the specific origin of a discharge or runoff is known). The section that follows is provided as background information, since some of the sources controlled by this program are the result of surface runoff as well as pipe discharges, and therefore may be interpreted by the public as being nonpoint source in nature, or may be of interest to those concerned about runoff water quality.

Concentrated (or confined) animal feeding operations(CAFOs) fall under Federal Clean Water Act NPDES permitting authority. In addition, States have generally expanded Federal requirements. For example, States have expanded upon federal siting requirements and limitations and have further regulated the size of the operations subject to permit. Some States link the development of enforceable nutrient management plans either to the existence of the CAFO or to the threat of nutrient pollution to nearby waters.

Indiana Code Title 13, Article 18, Chapter 10 provides for the regulation and control of confined animal feeding operations within the State. Prior to the construction of a CAFO, the operator must submit an application which includes a manure management plan and additional information, such as general features of topography, soil types, drainage course, identification of nearest streams, ditches and lakes, and the locations of land application areas, manure treatment facilities and water wells on the site. IC 13-18-10-2(a). The construction and operation of the CAFO must meet the requirements of Chapter 10 and any rules adopted thereunder, as well as all water pollution control laws and rules adopted thereunder. IC 13-18-10-2(c). The approval of a CAFO may be amended or revoked for the failure to comply with water pollution control laws and the rules adopted thereunder. IC 13-18-10-2.1(e).

Rules, policies or statements concerning the construction and operation of CAFOs may include standards for "manure application and handling that are consistent with best management practices: designed to reduce the potential for manure to be conveyed off a site by runoff or soil erosion." IC 13-18-10-4(a)(2). In addition, injunctive relief and penalties are available against violators. IC 13-18-10-5 and IC 13-18-10-6. Penalties available include civil penalties (IC 13-30-4), infractions (IC 13-30-5), criminal offenses (IC 13-30-6) and/or forfeiture of vehicles (IC 13-30-8). IC 13-18-10-6.

Indiana is currently preparing a new rule (327 IAC 16) regarding CAFOs which is intended to minimize contributions of CAFOs to water quality problems and to formalize standards used to approve CAFO permits. (The proposed rule is in line with the Unified National Strategy for Animal Feeding Operations published by the U.S. Department of Agriculture and the U.S. Environmental Protection Agency on March 9, 1999.) The new regulations are also intended to build a reliable and fair enforcement program. At this time, IDEM is engaged in discussions with the U. S. EPA, regulated community, and other interested parties on the details of the regulatory program for CAFOs, which may include NPDES permits where Indiana's current program would be deemed "functionally equivalent" to the Federal NPDES program.

5.12 SOURCE WATER ASSESSMENT PLANS

Indiana is currently in the process of developing a source water protection program to be funded under Section 1452 of the Safe Drinking Water Act. While public water systems using ground water are addressed under the current wellhead protection program, there are no comparable comprehensive source water assessment or protection programs for surface water systems (although many regulatory programs, including the NPDES permit program, CAFO regulations, and underground storage tank regulations all contribute to surface water protection). Indiana's source water assessment plan (SWAP) identifies and delineates source water areas (watersheds and delineated wellhead areas) for each public water system in the State. In the identified source water areas, the State will inventory the potential sources of contamination and a list of contaminants of concern, and assess water system susceptibility to contamination. The State recognizes that both point and nonpoint sources in the watershed and recharge areas for aquifers may release contaminants which can impact surface and ground water. The Indiana SWAP is currently under review by U.S. EPA. Approval of the SWAP and program implementation is expected by November 1999.

5.13 TRACKING ACTIVITIES

Overall performance of NPS and point source programs and initiatives at IDEM is tracked through the EnPPA evaluation process, in which each EnPPA objective is reviewed monthly by the Commissioner's office for progress toward stated goals. This information is compiled as a "Measures of Success Report" for internal use, and annual and semi-annual EnPPA reports are submitted to U.S. EPA. In addition, those programs which are grants-driven or otherwise directly use Federal funds each have a reporting requirement to U.S. EPA (or other funding source). At this time there is no process other than the EnPPA to amass all of the individual progress reports into one document, although a financial tracking database is being developed for the Office of Water Management which will organize all information on Section 319, 104, 205 and SRF grants activities in one location for internal review

6.0 MECHANISMS FOR PROGRAM MANAGEMENT AND COORDINATION

Key Element 7: **The State identifies Federal lands and activities which are not managed consistently with State nonpoint source program objectives. Where appropriate, the State seeks U.S. EPA assistance to help resolve issues.**

6.1 OVERVIEW

The preceding chapters described the various authorities, resources and program activities addressing nonpoint source pollution management in Indiana. This Chapter focuses on the role of Federal agencies and State agencies in coordinating nonpoint source pollution management to ensure that Federal lands and activities are consistent with Indiana's nonpoint source program objectives. This Chapter is organized in the following sections:

6.2 INTERACTION WITH FEDERAL ENTITIES

Under Key Element 7, IDEM is to identify Federal lands and activities in Indiana, and ensure that they are consistent with Indiana's nonpoint source program objectives. The following section outlines the lands and activities to be included in this assessment.

Federal Lands

Compared to Western States, there are not many land areas in Indiana that are managed by Federal agencies. (See Figure 6-1 for a map of all Federally-managed lands within the State of Indiana.) The largest Federal landowner is the Hoosier National Forest, in south central Indiana. However, several agencies own or manage small parcels of land, or carry out conservation programs, and coordination with IDEM is advisable and of mutual benefit.

Army Corps of Engineers (ACOE)

The IDEM Wetlands group works with the ACOE on CWA Section 401 permits. IDEM reviews each permit application for compliance with the State's water quality standards.

The ACOE owns several reservoirs in the State. Most of the land around the reservoirs is leased to the Indiana Department of Natural Resources to manage for recreation or wildlife habitat. The ACOE retains control of most of the dams in order to implement the flood control function of the reservoirs, and for maintenance purposes. The ACOE and the IDNR both staff property managers at the reservoirs. They work together to address any problems on the sites.

The ACOE participates to some extent in the W.A.T.E.R. Committee, where Indiana watershed issues are discussed. The State has also relied upon ACOE expertise concerning wetlands to help in reviewing of 319 proposals. The Wetland Advisory Committee is a multi-agency group working on wetland conservation issues, and the ACOE has participated in these meetings.

Department of Defense (DOD)

IDEM has little working relationship with the DOD. They are included in the early environmental coordination process used for projects that are reviewed for potential environmental impact and permitting needs.

Farm Services Agency (FSA)

FSA and IDEM have worked together on the NPS Task Force and on the W.A.T.E.R. Committee; IDEM has also supported Water Quality Incentive Projects funded through FSA in the past.

Federal Highway Administration (FHA)

The IDEM Wetlands program works with the FHA on Sections 401 and 404 permits and reviewing their project plans. The State interacts with the US Department of Transportation (USDOT) through the Indiana Department of Transportation (INDOT).

U.S. Forest Service (USFS)

The USFS worked on the Task Force for the NPS Management Plan and also has participated in the W.A.T.E.R. Committee. USFS has consulted with IDEM regarding their responsibilities under the Clean Water Action Plan.

U.S. Fish and Wildlife Service (USFWS)

IDEM has worked extensively with the USFWS on various NPS issues, including funding Section 319 projects by assisting in the review of 319 proposals. USFWS also served on the Task Force for updating the NPS Management Plan. The Wetlands group of IDEM works with the USFWS on Sections 401 and 404 permit project review and have partnered with them on Wetlands Restoration projects. They also serve on the W.A.T.E.R. Committee and the Wetlands Advisory Group.

U. S. Geological Survey (USGS)

IDEM has worked extensively with the USGS on NPS issues. IDEM has funded Section 319 projects with USGS, and USGS has assisted in the review of certain 319 proposals. USGS served on the Task Force for updating the NPS Management Plan. USGS also worked on the development of the Watershed Action Guide. USGS serves on the W.A.T.E.R. Committee and the Wetlands Advisory Group.

National Parks Service

The National Park Service has participated in National Lakes Shore projects and have facilitated local watershed meetings. More recently, IDEM has sent representatives to the Wabash Heritage Corridor meetings, in which the Park Service is a major player.

Office of Surface Mines (OSM)

The OSM has consulted with the IDEM on some of the 319 projects. They have also participated on the W.A.T.E.R. Committee.

Bureau of Prisons

The local Soil and Water Conservation District and the NRCS District Conservationist work with the tenant farmers of the prison property on NPS issues.

U.S. Environmental Protection Agency

IDEM has worked with the U.S. EPA in numerous ways. The Wetlands group of IDEM works with U.S. EPA in the Sections 401 and 404 permit review process and on the Wetland Advisory Committee. The Watershed Management Section requires approval from U.S. EPA on Section 319 grant proposals. U.S. EPA has also collaborated with IDEM on several training programs and workshops.

6.3 RESOLVING INCONSISTENCIES BETWEEN FEDERAL AND STATE PROGRAMS

There is currently no comprehensive process (other than those described in Section 2.0) for resolving inconsistencies between Federal and State programs. The lack of this process has not been identified as a significant issue by any agency in the State, nor are there accounts of serious conflicts between State and Federal agencies in Indiana. It is generally understood that Federal agencies are subject to the same authorities as everyone else when spending funds or affecting land use changes. This record of amicable relationships may be largely due to the small amount of land held by Federal entities in the State.

The State plans to update Comprehensive Planning Process (CPP) documents during 2000-2001. (The Comprehensive Planning Process is required by U. S. EPA to inform them of the State's plans to comply with federal regulations and rules.) When this is done, the Federal consistency issue will be revisited and the State will determine whether there is a need to establish a formal process to review Federal activities above and beyond the regulatory requirements which have already been established.

6.3.1 Joint Programs

The partnerships described in Section 3.0, and the mechanisms described in this chapter for working with other agencies, include descriptions of most of the cooperative efforts that impact the NPS Program. The relationship with NRCS is notable and is described below.

Natural Resources Conservation Service (NRCS)

The IDEM has a close working relationship with the NRCS. The IDEM Wetlands group relies on the NRCS for comments in the Sections 401 and 404 permit review process. The Watershed Management Section works with NRCS in several ways: through the Section 319 grants program, funding projects with the NRCS; relying on NRCS for technical expertise in reviewing IDEM project proposals; and assisting NRCS in review of EQIP conservation priority area proposals.

For the past 8 years the Watershed Management Section has had an NRCS Resource Conservationist on staff as a liaison between the two agencies. Three additional NRCS Resource Conservationists have been added to the NPS Program staff at IDEM in 1999 to assist with watershed planning at the local level, and develop Watershed Restoration Action Strategies. The NRCS has also participated in the NPS Task Force, and is the primary sponsor of the W.A.T.E.R. Committee.

NRCS and IDEM share leadership responsibilities in implementing the President's Clean Water Initiative (Clean Water Action Plan), including development of the UWA and WRASs.

7.0 MEASURING PROGRESS

Key Element 6: **The State reviews, upgrades, and implements all program components required by Section 319(b) of the Clean Water Act, and establishes flexible, targeted, and iterative approaches to achieve and maintain beneficial uses of water as expeditiously as practicable.**

Key Element 9: **The State periodically reviews and evaluates its nonpoint source management program using environmental and functional measures of success, and revises its nonpoint source assessment and its management program at least every five years.**

7.1 OVERVIEW

This chapter addresses the manner in which IDEM is measuring progress in achieving nonpoint source pollution management to achieve water quality goals. The section first describes progress over the past ten years, and then outlines the measures and environmental indicators that will be used to track progress in the future.

The chapter is organized in the following sections:

7.2 PROGRESS: 1989 TO 1999

The 1989 NPS Management Plan contained a detailed table of action steps to be carried out by IDEM and its partners from 1989 to 1994. In assessing progress toward those goals over the intervening ten years, it is important to note that some programs and initiatives at the Federal level have changed priorities within the States, and that allocation of personnel and financial resources also influence progress. Some recommendations were fulfilled by promulgation of Rules or passage of legislation, and those activities may have occurred independently of the NPS Management Plan. The intention is to show the progress made in the last ten years in controlling pollution from the listed activities.

The goals were developed by identifying pollution concerns or human activities that required action. Lead partners are the agencies responsible for addressing and meeting the specific goal.

Table 7-1 defines the goals from the 1989 NPS Management Plan and describes the progress made towards achieving this goal from 1989 to 1999.

7.3 FUTURE MEASURES OF PROGRESS: 2000 TO 2004

Tables 7-2 and 7-3 describe the five-year targets for administrative and water quality goals of the NPS Program.

7.4 NPS PLAN EVALUATION AND AMENDMENT

In the future, IDEM will review progress in implementing this plan by evaluating environmental monitoring data to assess changes in environmental quality, annually reporting on nonpoint source management activities, and amending and updating the plan on a regular basis.

7.4.1 Monitoring Activities

Chapter 4.0 provides a complete discussion of the State's water quality monitoring strategy. These monitoring activities will provide data to assess achievement of the goals outlined in Table 7-3.

7.4.2 Annual Report

Each year when the Annual Report is submitted to U.S. EPA, there is an opportunity to evaluate progress in meeting the goals and responsibilities of the NPS Management Plan. In previous years, the Annual Report has primarily been a discussion of the Section 319 grants program, with some general information from partner agencies concerning their conservation programs.

Beginning with FFY 2000, the Annual Report will contain an evaluation and discussion of each goal of the NPS Management Plan, and will refer to updates of the 305(b) Report and Unified Watershed Assessment. In addition, as far as is feasible, the Annual Report will contain information from partner agencies on watershed restoration projects and results, in accordance with U.S. EPA Region V's goal to capture this information. The location, cost and effectiveness of practices implemented will be reported in as much detail as partner agencies' information collection procedures allow.

The Annual Report will be posted on the Internet, and the members of the NPS Task Force and the W.A.T.E.R. Committee will be alerted to the opportunity to comment on progress in reaching goals, as well as to bring up issues which may need to be addressed in future plans or through amendments to the existing Plan.

7.4.3 Amendments

Amendments will be submitted to U.S. EPA Region V when substantial changes or additions to the existing Plan are required due to changes in Federal or State legislation or other events. IDEM management will determine, in cooperation with U.S. EPA Region V, when such amendments may be warranted.

7.4.4 Updating the Plan

The 2000-2004 NPS Management Plan will need to be updated and submitted to U.S. EPA Region V by August 30, 2004 for approval for FFY 2005 funding. The NPS Task Force will be convened and the Plan evaluated for revisions and additions during FFY 2004.

Table 7-1 Progress in Implementing Nonpoint Source Management Activities: 1989-1999

GOAL	LEAD PARTNERS	PROGRESS 1989 TO 1999
URBAN RUNOFF (Impact from urban runoff and CSOs, stormwater runoff enforcement, industrial pretreatment, promote permeable paving) and LAND DEVELOPMENT (evaluate current erosion control practices, identify BMPs, develop model local ordinance and education)	IDEM, INDOT, IDNR, NRCS, SWCDs	• In 1992, the Water Pollution Control Board promulgated NPDES general permit rules for discharge of Storm Water Runoff Associated with Construction Activity (Rule 5) and Storm Water Discharges Associated with Industrial Activity (Rule 6); NPDES rules were also promulgated requiring permits for discharges from large and medium municipal separate storm sewer systems. Approximately 1,500 industrial facilities are currently covered by Rule 6. • IDNR DSC and local SWCD assist IDEM in implementing Rule 5 by providing technical assistance, conducting site inspections, reviewing required Erosion and Sediment Control plans. Approximately 1,000 construction site operators submit a Notice of Intent letter to comply with Rule 5 each year. Technical training has been provided on principles of soil erosion and sedimentation and measures available to address resource concerns. Numerous training sessions, workshops and programs are held every year throughout the State. The Indiana Handbook for Erosion and Sediment Control guidance document and the Erosion Control on Individual Building Lots have been developed. In addition a research project related to stabilized versus eroded lots and their salability was initiated with Purdue University. • Construction activities within or adjacent to rivers and streams are addressed through IDNR's construction in the floodway permits. IDNR comments on streambed and disturbance/bank/channel disturbance and offer alternatives as permit conditions. Stormwater specialists also provide comments on each project with regard to erosion and sediment control. • Inspections are conducted at permitted construction sites. • All State agencies participate in educating the public and regulated community about effects of land use on water quality.
TURF: Study pesticide use, monitor groundwater, education	IDEM, OISC, CES, USGS, IDNR	• The Turf Research and Diagnostic Center and the Midwest Regional Turf Foundation are located at Purdue. • Annual updates of the "Turf and Ornamental Reference to Plant Protection Products" inventories commonly used pesticides. • Purdue publishes a series of outreach brochures and conducts presentations focused on pesticide and fertilizer issues related to lawn care and safety. • The Master Gardener Program, coordinated Statewide through the CES, addressees turf issues through training and outreach materials.

Table 7-1 Progress in Implementing Nonpoint Source Management Activities: 1989-1999

GOAL	LEAD PARTNERS	PROGRESS 1989 TO 1999
LAND APPLICATION of WASTE: Inspect sites, prohibit within 300 ft. of slopes > 6%, new regulations, incorporate federal regulations into State rules	IDEM, county health departments, WPCB, IDNR, EPA	• IDEM management and review of site use records submitted by permittees has resulted in increased compliance monitoring. IDEM has also developed a bimonthly information publication sent to all permittees and site owners, to educate the reader on operating methods that minimize odors, nutrient loss and erosion. • Due to a significant trend by farmers to use no till and maximize residue cover, runoff and soil erosion potential is further reduced. • A revised land application regulation (327 IAC 6.1) went into effect in June 1998. The revision incorporated EPA 40 CFR Part 503 Sludge Disposal Regulation standards for contaminant levels, pathogen reduction and site use restrictions. The regulation also fined tuned existing site use restrictions to further minimize soil erosion and nutrient loss and odors.
ON-SITE SEWAGE: improve administration, revise Rule 410 IAC 6-8, revise Tech Bull SE-8 & SE-13, assist local departments to keep qualified personnel, increase number of staff soil scientists	ISDH	• ISDH promulgated Rule 8.1, effective 12/90 to improve site evaluation and system design. • ISDH has added one environmental engineer and 2 environmental scientists to the Residential Sewage Disposal staff. • ISDH has worked with local health boards and county councils on local health department issues. • ISDH is working with IDEM, Rural Community Assistance Program, Indiana Department of Commerce and other public and private organizations to implement plans for communities with problems, maintenance of on-site systems and other related issues.
LANDFILLS: review sludge storage lagoon regulations, provide staff needed, evaluate adequacy of landfill operating requirements, review Superfund process, provide staff for cleanups, promulgate rules to prioritize State-funded responses, prioritize closed landfills on Superfund list	IDEM	• Position was created to evaluate financial assurance submittals for solid waste facilities. • Staffing levels are adequate to process solid waste facility applications in a timely manner. • Indiana updated the rules for municipal solid waste landfills in 1996 to meet new federal standards. Additional changes will be implemented in 1999.
MINERAL EXTRACTION	IDNR, OSM	• Current rules and regulations address a majority of the concerns raised in the 1989 Plan.
STREAMBANK & SHORELINE EROSION	IDNR, INDOT, NRCS	• State implements and enforces E/SCPs. • State requires floodway permits for construction activities within or adjacent to rivers and streams.

Table 7-1 Progress in Implementing Nonpoint Source Management Activities: 1989-1999

GOAL	LEAD PARTNERS	PROGRESS 1989 TO 1999
FORESTRY: evaluate forestry water quality management practices; develop education programs on land management; develop demonstration areas	IDNR, USFS	• Funding for Indiana Forestry Activities has become much stronger. Grants (Urban Forest Conservation, Arbor Day, Hometown Indiana, Tree Steward Program) and cost share assistance (Forest Improvement Program [FIP], Conservation Reserve Program [CRP], Lake Monroe Watershed BMPs) have enabled increased tree planting, timber stand improvement, critical area planting, and erosion control practices. • Section 319 grants enabled: development of a video on timber harvesting practices, reforestation of forested wetlands along the lower and upper Wabash, a study of forests in the watershed of Lake Monroe, development and delivery of a BMP training program for the timber industry, installation of riparian buffers in the Limberlost area of the upper Wabash, incentives for landowners to adopt forestry BMPs, expansion of the capacity of the State Tree Seedling Nursery, and continuing projects to assist landowners with reforestation in riparian zones. • Forest Legacy Program established, identifying six areas in the state for priority protection of environmentally important forests through purchase of development rights. • Project Learning Tree helps Indiana landowners to develop demonstration forests for education and training purposes.
AGRICULTURE: Education and incentives; enhance interagency coordination; evaluate impacts of BMPs; locate critical erosion management areas; integrate nutrient and pesticide management strategies with WQ goals; support TX2000; develop training materials; monitor suspected problem areas for water pollution; develop BMP demonstration sites; implement the Food Security Act; implement State pesticide programs; monitor groundwater for nitrates and pesticides; monitor phosphorus entering lakes from agriculture; promulgate rules under Indiana Commercial Fertilizer Law; evaluate need for animal waste rule changes; increase staffing to allow inspection of CAFOs; conduct training for operators.	IDEM, NRCS, CES, IDNR, IOSC	• IDEM has created an agriculture liaison position to work in cooperation with CES and farmers to provide technical assistance including educational outreach. • Due to the continued trend for livestock to be placed in confinement buildings and the need to focus on regulatory development, the Agency has not developed a program specific to livestock maintained on pasture. • The draft of the new CAFO regulations is currently out for public comment. It contains standards covering design, construction, waste application, record keeping and closure. • Solid Waste Compliance Inspectors began a prioritized inspection program at CAFOs in 1998. Over 600 farms have been inspected. • The Conservation Partnership conducts a tillage transect at regular intervals to monitor the levels of no-till in Indiana. • A Conservation Partnership between NRCS, FSA, IDNR, SWCD's, CES, IDEM, and other resource groups is working towards coordinating cost-share programs such as EQIP, LARE, 319, "T by 2000" and CRP in a way that maximizes human and financial resources, reduces duplication, eliminates conflicting recommendations, and facilitates achieving common water quality goals. This partnership results in an integrated, multi-agency approach to identifying resource problems and developing criteria to address both soil erosion and water quality.

Table 7-1 Progress in Implementing Nonpoint Source Management Activities: 1989-1999

GOAL	LEAD PARTNERS	PROGRESS 1989 TO 1999
ATMOSPHERIC DEPOSITION: Monitor air pollutants; evaluate impacts on inland waters and Lake Michigan; integrate State air and water pollution control programs.	IDEM, EPA	• Mercury recycling and education programs developed; IDEM Office of Pollution Prevention and Technical Assistance (OPPTA) working with industry to eliminate mercury releases.
HAZARDOUS WASTE: incorporate 1984 HSWA provisions into State regulations; develop groundwater guidelines for closure plans; computerize groundwater monitoring data storage; evaluate and enhance spill prevention programs.	IDEM, EPA, IDNR, and IDH	• IDEM was authorized to implement the majority of RCRA Subtitle C hazardous waste management program. • IΔEM OSHWM works in partnership with U.S. EPA Region 5 to address Indiana's hazardous waste management problems. • The State has adopted most of the Federal hazardous waste management standards (40 CFR 260-270 and 273). • PCBs, infectious waste and asbestos are regulated under rules specific to those wastes. • Used oil is regulated under the hazardous waste rules when disposed and under used oil rules when recycled. • Site remediation and emergency response hazardous waste are handled by IDEM's Office of Environmental Response under other statutory and regulatory programs. • IDNR and IDH rules cover certain types of waste that are hazardous if improperly managed and OSHWM works closely with these agencies to coordinate activities. • OSHWM and IDEM's Office of Pollution Prevention and Technical Assistance work together to further the goals of pollution prevention, waste minimization and recycling.
TRANSPORTATION: Inventory road de-icing facilities and prioritize for compliance; adopt rules for salt storage & handling; evaluate alternatives for ice removal.	IDEM, INDOT	• On 9/98 INDOT distributed guidance document to all INDOT Districts - INDOT SALT HOUSEKEEPING GUIDELINES FOR PERSONNEL INVOLVED IN SNOW REMOVAL. INDOT will continue to emphasize good housekeeping guidelines in the handling/use/storage of road de-icing chemicals. • Inventoried the location and containment status of all salt stockpiles in the state. • INDOT has contracted with the USGS to conduct study on effects of salt runoff on surface and groundwater; results expected soon.

Table 7-2 Administrative Targets of the Nonpoint Source Program – 2000 to 2004

The long-term administrative goal for the NPS Program in Indiana is to build and maintain dynamic and effective processes and partnerships for restoring and protecting Indiana's waters from NPS pollution. Five-year targets for working toward that goal are described below.

Goal	2000	2001	2002	2003	2004
1. Unified Watershed Assessment (Partners include NRCS, IDNR, ORSANCO, USGS, Purdue, and IGS)	Update coverages and send to U.S. EPA; identify critical watersheds at 11-digit level	Update nutrient and sediment parameters	Update selected watersheds at 14-digit HUA resolution and send to U.S. EPA	Update biological parameters	Update coverages and send to U.S. EPA
2. Develop and implement Watershed Restoration Action Strategies (Partners include NRCS, IDNR, and others as appropriate.)	Submit final drafts to U.S. EPA by 3/00. Implementation begun in 1999 continues.	Final documents signed to signify concurrence by local and State partners. Implementation continues.	Submit drafts for 10 additional watersheds to U.S. EPA. Implementation for those watersheds begins.	Implementation continues.	Submit drafts for 10 additional watersheds to U.S. EPA. Implementation begins in those watersheds and continues in the previous 21 watersheds.
3. Manage Section 319 grants program effectively.	Follow U.S. EPA guidance, maintain GRTS inputs, maintain electronic and paper filing system, maintain fiscal and legal integrity of contracts, target projects in accordance with NPS Plan, submit timely Annual Reports.				
4. Participate in CZARA	IDNR obtains approval of coastal management plans.	Coastal Management Plans acknowledged through addendum to the NPS Plan.	Coordinate with IDNR to implement NPS components of Coastal Management Plan.		
5. Support Clean Lakes Program	Section 319 funds support the Lake Monitoring Program; results of monitoring are used in the UWA and 305(b) Report.				
6. Transfer water quality information to local level	Upper Wabash assessments and 2000 305(b) Report	Kankakee & Lower Wabash assessments	Great Lakes & Ohio assessments , and 2002 305(b) Report	West Fork & Patoka assessments	East Fork White River & Whitewater assessments; 2004 305(b) Report
7. Facilitate development of watershed plans at local level	NRCS contract employees (2), after completion of WRAS tasks, assist local groups with watershed plan development.				One watershed plan has been completed at the local level (14 digit hydrologic unit or smaller) in each Category I watershed identified by the UWA.

Table 7-2 Administrative Targets of the Nonpoint Source Program – 2000 to 2004

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Goal	2000	2001	2002	2003	2004
8. Act as a bridge between IDEM and partner agencies	Submit updated NPS Plan to the NPS Task Force for review, comment, and participation.	Participate fully in the activities of the W.A.T.E.R. Committee (ongoing). Work toward Statewide recognition of the role of the W.A.T.E.R. Committee.			
9. Assist in development and implementation of TMDL Plans.	*The NPS Program will work with local citizens in watersheds to develop the nonpoint source planning component of TMDLs. TMDLs currently on the 303(d) list are to be completed by 2015. See 303(d) List (Appendix II) with schedule of TMDLs.*				
10. Integrate watershed planning approach throughout the Office of Water Management	Workgroup develops draft framework for watershed approach.	Framework implementation plan is developed and implementation begins.	Implementation continues.		
11. Integrate nonpoint source planning and project needs with other sources of financial assistance.	Develop process to integrate 319, 104, and 205(j) grants solicitation and selection.		Work with IDNR and NRCS to integrate EQIP, CRP, and LARE applications with 319/104/205 grants applications to the extent feasible.		Develop MOU with partner agencies concerning information sharing and funding allocations for water quality restoration and protection.

Table 7-3 Water Quality Targets of the Nonpoint Source Program – 2000 to 2004

The long-term water quality goal for the NPS Program in Indiana is that all waters of the State will meet designated uses for recreation, aquatic life support, and consumption and that these uses will not be impaired due to nonpoint source pollutant loading. Five-year targets for working toward that goal are described below.

Issue	2000	2001	2002	2003	2004	Comments
Nitrogen & Phosphorus	State participates in regional nutrient standard development with U.S. EPA. A portion of Section 319 funding is applied to watershed projects targeting nutrient load reduction (ongoing).	If a regional standard has been developed, State begins to develop nutrient water quality standards in accordance with U.S. EPA guidance. If not, a narrative water quality standard is used to evaluate monitoring data.	Through UWA, 305(b), and other assessment tools, watersheds in the State with critical nutrient load reduction needs are identified. This information is shared with partner agencies and the public.	Implementation of nutrient load reduction projects continues.	2001-2002 monitoring of the White River Basin shows a 10% reduction in nutrient levels (attributable to NPS pollution) in the water column over 1996-1997 levels.	A State water quality standard has not been set for these parameters. The goal of the State is that these parameters not cause any stream, lake, or aquifer to fail to meet designated uses.
Sediment	A portion of Section 319 funding is applied to watershed projects targeting sediment load reduction (ongoing).	With IDNR Division of Soils, NRCS, and USGS, explore methods to assess and prioritize sediment loads for all watersheds.	Establish methods to assess and target sediment problems throughout the State and incorporate this information into the UWA.		In watersheds where sediment has been identified as a critical issue through the UWA, the number of acres of cropland farmed to 'T' increases by 5% based on tillage transect results, as compared to 1998 levels.	A State water quality standard has not been set for this parameter. The goal of the State is that this parameter not cause any stream or lake to fail to meet designated uses.

Table 7-3 Water Quality Targets of the Nonpoint Source Program – 2000 to 2004

The long-term water quality goal for the NPS Program in Indiana is that all waters of the State will meet designated uses for recreation, aquatic life support, and consumption and that these uses will not be impaired due to nonpoint source pollutant loading. Five-year targets for working toward that goal are described below.

Issue	2000	2001	2002	2003	2004	Comments
Pathogens	Through *E.coli* monitoring and DNA genotyping, assess and prioritize pathogen contamination as a result of livestock and human activities. Work with partners to target critical areas for restoration. *E.coli* reduction will also be a function of TMDL development.				In White River Basin watersheds where livestock production is believed to be the primary source of pathogens, as identified by the UWA, *E.coli* levels decrease by 10% as compared to 1996-1997 levels.	Goal of the State is to fully support recreational water uses in all streams and lakes.
Aquatic Habitat & Communities	Assess, prioritize and target through the UWA and TMDL development. Assessment Branch and partners will continue to pursue cause and effect relationships of land use, habitat degradation and biotic community response. TMDLs will be developed where scheduled for impaired biotic communities.				In White River Basin watersheds where nonpoint source pollution is believed to be the primary cause of aquatic ecosystem degradation, as identified in the UWA, the mIBI and fIBI show 5% improvement in comparison to 1996-1997 monitoring results.	Goal of the State is to fully support a healthy aquatic community in all streams and lakes with that designated use.

Table 7-3 Water Quality Targets of the Nonpoint Source Program – 2000 to 2004

The long-term water quality goal for the NPS Program in Indiana is that all waters of the State will meet designated uses for recreation, aquatic life support, and consumption and that these uses will not be impaired due to nonpoint source pollutant loading. Five-year targets for working toward that goal are described below.

Issue	2000	2001	2002	2003	2004	Comments
Pesticides	Source water assessment and groundwater monitoring enable assessment and targeting of watersheds where pesticides are a significant problem. These areas are identified in the UWA. Working with partners, management approaches are developed for critical areas.				An atrazine management plan is developed for the St. Joseph watershed, working cooperatively with Michigan DEQ, in order to reduce atrazine loading to Lake Michigan by 30% by 2009	Goal of the State is to support designated uses, including drinking sourcewater (surface and groundwater)
Oxygen Deficits	Through TMDL development, implementation plans are prepared and work begins in watersheds with streams impaired by oxygen deficits.				In White River Basin project watersheds where low dissolved oxygen levels are believed to be due to NPS pollution, there is a 10% improvement in ALUS scores over 1996-1997 levels.	Goal of the state is to have all streams and lakes meet minimum water quality standards for dissolved oxygen.

1. Note that these goals may need to be adjusted to accommodate unusual weather conditions, particularly in cases where sampling data has been gathered only once in five years and there is no additional data to support results.
2. For additional information on the State's strategy for carrying out TMDLs, refer to Section 4.5.2.